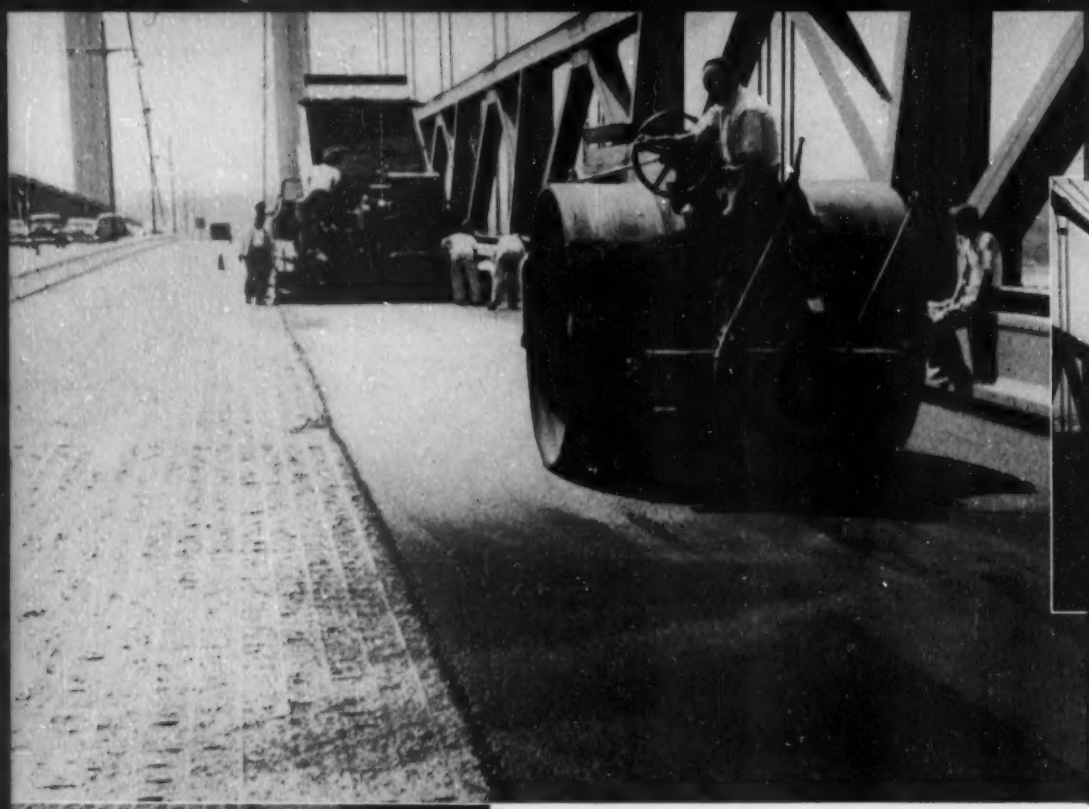
The American City

SEPTEMBER 1954

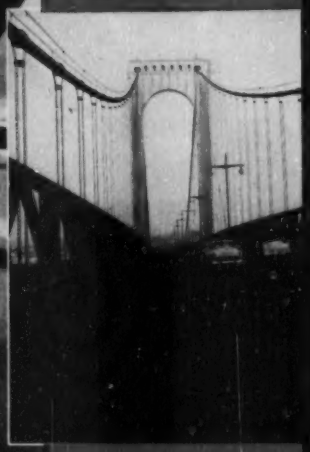
Atlantic City, host to the American Public Works Association Congress, September 19-22

—shows how it keeps its streets and beach front clean with the help of mechanized equipment. The famous resort city celebrates its 100th anniversary this year.

Street Superintendent Fred Herrick (left), and Public Works Commissioner William F. Carey inspect the operation of this new equipment.



Laying hot-mix Texaco Asphaltic Concrete pavement on New York City's Bronx-Whitestone Bridge, which is under jurisdiction of Triborough Bridge & Tunnel Authority.



Asphalt contractor — Standard Bitulithic Company, Mount Vernon, N.Y.

Asphalt consultant for Triborough Bridge & Tunnel Authority — E. D. Sabin

Close-up of exposed steel grid in bridge floor and the new Texaco Asphaltic Concrete wearing surface.

Spreading seal coat of asphalt-treated stone dust while the asphalt pavement was being rolled.

Traffic will average 75,000 vehicles a day on this resilient Texaco Asphalt pavement

The Bronx-Whitestone Bridge links two of New York City's five boroughs, Bronx and Queens. More than 23,800,000 vehicles crossed the bridge last year, a daily average of 65,000, with a 24-hour peak of 114,000 cars and trucks.

During July of this year, a hot-mix Texaco Asphaltic Concrete wearing surface was constructed on this bridge. Careful planning of working hours resulted in a minimum of inconvenience to traffic. Prior to laying the new asphalt surface, the existing pavement was chipped off down to the steel grid in the bridge floor, as shown by the photos. The resilient asphaltic concrete surface was then laid to a compacted thickness of 1½ inches.

It was essential that the new pavement be opened to traffic immediately after it had been rolled. Application of a seal coat of asphalt-coated stone dust during the rolling operation eliminated any tackiness.

The answer to your own paving problem may be a heavy-duty pavement of the hot-mix Texaco Asphaltic Concrete type, or it may be one of the low-cost Texaco Asphalt surfaces designed for secondary roads and streets. Texaco Asphalt Cements, Cutback Asphalts and Slow-Curing Asphaltic Oils offer the road builder a variety of answers to the paving problem. Helpful information regarding all of these types is supplied in two booklets which you can obtain without obligation by writing our nearest office.

THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Minneapolis 3 Philadelphia 2 Richmond 19

TEXACO

REG. T. M.

TEXACO ASPHALT

SEPTEMBER 1954

The American City

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THE COVER PICTURE

ATLANTIC CITY, N. J., celebrates its 100th year as a vacation and convention city this year. To maintain this long-time reputation as a resort and meeting city, the Department of Public Works has had to be constantly alert to the development of new methods of municipal cleanliness.

Latest of these, introduced by Major William F. Casey, Commissioner of Public Works, and Fred Herrick, Superintendent of Streets, is that of a mechanical beach cleaner, a product of the Barber-Greene Company. To keep streets in polished-clean condition, the Public Works Department uses a City Tank Corporation flusher with a capacity of 2,000 gallons.

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Out of the Night Came a Call for Help

Quick action of alert telephone operator helps save man with heart attack

AWARDED VAIL MEDAL. Mrs. Carolyn F. Gross, night operator in Berlin, N. J. Awarded Vail Medal for "initiative and resourcefulness" in answering an emergency call. Vail Medals, accompanied by cash awards, are given annually by the Bell System for acts of noteworthy public service by telephone employees throughout the country.

It was about two o'clock of an August morning when the call flashed on the switchboard. A woman, in an excited voice, asked to be connected with a doctor.

Mrs. Carolyn F. Gross, the night operator, rang the doctor's home immediately but he was unavailable. Sensing a critical emergency, she asked if she could be of help in getting another doctor.

"Oh, please do everything you can," implored the caller. "My husband has had a heart attack and is very ill."

Mrs. Gross rang a doctor who had helped in a previous emergency. Then, realizing he was new in the area, she arranged to have the State Police meet him at a certain point and lead him to the house.

Shortly after, the subscriber's daughter called to ask for oxygen.

"It's on the way," said Mrs. Gross. "I thought you might need it so I telephoned the emergency ambulance service. They ought to be there any minute."

Just before she went off duty, Mrs. Gross called to ask how the sick man was doing and if there was anything else she could do.

"You've already done so much," said a grateful voice. "The doctor says that it's only because of your help that my husband is alive."

POLICE ESCORT. To help the doctor get there faster, the operator arranged for the State Police to escort him to the sick man's home.

EVER READY . . . EVER HELPFUL. *Day or night, rain or shine, the telephone stands ready to help you—in the everyday affairs of life as well as emergencies. This swift, willing worker will run your errands, guard your home, save countless steps and valuable time and keep you in touch with relatives and friends. In office and home, these oft-repeated words reveal its value—"I don't know what I'd do without the telephone."* **BELL TELEPHONE SYSTEM**

Sewerage and Sewage Treatment

Sewage Works Notes from New Jersey

Easy Does It At Bayonne

THE coastal city of Bayonne was willing to treat its sewage, but not until the need was clearly evident. The Interstate Sanitation Commission first pointed out the need for treatment in 1949. This tristate pollution-control agency has jurisdiction over coastal waters in New York, New Jersey, and Connecticut. In 1951, the New Jersey Superior Court not only sustained this order but established a timetable for completion of the project.

Thereupon, Bayonne prepared plans for a sewage-treatment plant, a sewer system consisting of trunk sewer interceptors and appurtenances, together with a sewer system pumping station and force main.

Then the city proceeded to raise approximately $10,000,000. New Jersey imposes a legal debt limit on its cities amounting to 7% of the average of the preceding three years' real valuation. However, such a bond issue would have placed the city's bonded debt above this limit. So it appealed for and obtained a waiver of this legal debt limit. Today, Bayonne's plant is rapidly nearing completion.

Midget Plant—Giant Performance

RIVER GARDENS, a real estate development of 250 homes in Matawan Township, no longer may be blamed for foulness generated by its septic tanks since the creation of the Matawan Township Sewerage Authority.

The Authority retained A. J. Lanning, Trenton consulting engineer, who prepared plans and specifications for a Griffith Process package-type treatment plant with a design flow of only 100,000 gallons daily. The State Department of Health then issued the usual permits regulating the characteristics of the final effluent.

These notes are from the files of the New Jersey State Department of Health and are reported with the cooperation of Alfred H. Fletcher, director of environmental sanitation.

Dairy Wastes Get Aerobic Digestion

THE Sussex Milk and Cream Company, a division of the Borden Company, will soon have four treatment plants to purify milk wastes.

The company's original pilot-plant studies were based on anaerobic digestion and chlorination, using an existing septic tank. Six months of testing, however, indicated that the anaerobia were ineffective. Consequently, the company switched to aerobic digestion, adding sodium nitrate, which reduced the BOD 90%.

In the treatment, sodium nitrate is added to the waste waters in the plant's sewer. The waste then flows to the digester, first passing over a weir box to be measured. The digester is a baffled concrete tank equipped with heating coils and a recording thermometer that maintains a 75° to 80° F. temperature.

A pump continuously removes waste at the rate of 20 gpm from the last compartment. Of this quantity, 17 gallons return to the compartment over an aeration splash plate; 1 gpm returns to the influent line for reseeding purposes, and the remainder discharges to the stream through a chlorine contact chamber.

Clarifier—Digester Unit

THE new chemical plant on the Toms River in Ocean County will not only treat its dye and textile chemical wastes, but will purify the sanitary wastes of 600 employees, a total of 1.5 mgd.

The sanitary wastes will receive primary settling in a Dorr Clarigester after first passing through a Chicago Pump Company comminutor and a coarse bar screen. The Clarigester is constructed so that the settling tank is located above the digester in a single unit.

The industrial wastes are combined with the treated sanitary sewage, and the combination is neutralized with lime, permitted to settle in one lagoon, aerated in a second lagoon, and chlorinated before being discharged. A small fishpool serves as a control.

THE AMERICAN CITY

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LIFELINE: CAT* Motor Grader keeps it open at low cost

RUSK TOWNSHIP in Rusk County, Wisconsin, is an agricultural community of 500, isolated except for its unsurfaced "farm to market" roads. The region has many dairy farms, whose products must be delivered promptly. "Our entire road system and our contact with the outside world depend on our Cat No. 212," says Joe Scott, chairman of the Rusk Town Board. Here, according to Mr. Scott, is the record of this Caterpillar Motor Grader over the past five years:

"We must have reliable equipment, and our Cat Motor Grader has never let us down. It gave very fine service for 5200 hours. Then it was overhauled, and we expect the same fine performance again.

"We have many uses for our grader: plowing snow, working on culverts, removing rock, pulling stumps, bank sloping, ditching and so on."

Its main job is maintaining 37 miles of twisting, hilly roads. These are 22 feet wide, topped with pit-run gravel. Soil is sandy, rocky clay. Not the easiest material to work—yet this No. 212 blades the entire road system in 24 working hours!

The fast, reliable performance of this Caterpillar machine is saving money for its farmer-owners. Also saving them money is the low fuel consumption of its rugged diesel engine. All Caterpillar Engines are built to deliver full and foul-free power on low-cost No. 2 furnace oil.

Your Caterpillar Dealer will gladly demonstrate the positive, non-creep controls, unobstructed operator visibility, quick-change blade positioning—and other features that enable Caterpillar Motor Graders to do an outstanding job for communities all over the country. Call your dealer for an on-the-job demonstration, and count on him for dependable service.

Caterpillar Tractor Co., Peoria, Ill., U.S.A.

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99% OF ALL CAT MOTOR GRADERS ARE STILL IN USE

Parks & Playgrounds

Edited by JOSEPH PRENDERGAST, Executive Director, National Recreation Association

Speakers for National Recreation Congress

THE opening general session of the 36th National Recreation Congress in St. Louis on Monday evening, September 27, will feature an address by C. D. Jackson, Vice-President of Time, Inc.

Mr. Jackson recently returned to his publishing position after serving for more than a year as Special Assistant to President Eisenhower. During the past 15 years, Mr. Jackson has been prominently connected with international affairs both in the government and as a private citizen. He was formerly President of the National Committee for Free Europe.

Other general session speakers will include Soichi Saito, President of the National Recreation Congress of Japan. Mr. Saito, who attended the First International Recreation Congress in Los Angeles in 1952, is a prominent civic and religious leader and also the General Secretary of the YMCA in Japan.

The significance of creative play equipment in the atomic age will be discussed by Joseph Brown, Associate Professor in the School of Architecture and also instructor in boxing at Princeton University, at a Thursday morning general session.

"Responsibility of Local Government for Recreation and Parks" will be the theme of the Wednesday evening session, featuring municipal officials and civic leaders from St. Louis. Harland Bartholomew, nationally known city planner, will preside.

Million-Dollar Bond Issue Recommended for Cincinnati

RECOMMENDATIONS of the Hamilton (Ohio) Capital Improvement Program Committee call for the placing of a million-dollar bond issue for recreation on the ballot in November. When the program receives City Council approval, the issue will be placed before the voters of Cincinnati.

If the bond issue is approved this fall it will provide the Cincinnati Recreation Commission with $500,000 in 1955 and a like amount in 1956 for a rehabilitation and expansion program. Previous bond money for recreation capital expenditures has been exhausted. The new bond issue is considered to be essential if any new facilities are to be acquired or developed, or if obsolete and worn-out facilities are to be replaced.

Job Analysis and In-Service Training

JERRY DONOVAN, Assistant Director of the Civil Service Assembly of the United States and Canada, will lead a section meeting on "Job Analysis for Recreation Positions," at the National Recreation Congress. He will also serve as a consultant on civil service.

A session of "Visual Resources for In-Service Training" will be headed by Ted Deppe, recreation educator from Indiana University. Materials and equipment from the Visual Aids Department of the university will be used for demonstration and exhibit.

Responsibility for Recreation in Public Housing Projects

RECREATION needs of 2,250,000 occupants of low-rent housing units were discussed at a recent conference in Washington of the Public Housing Administration and the National Recreation Association.

Called at the request of the PHA, the conference re-stated PHA and NRA agreement that the responsibility for providing basic recreation facilities and leadership services in public housing developments is primarily that of the local community. Local public housing authorities in many instances were reported to be uninformed on their recreation responsibilities and to have failed to develop effective cooperation with municipal recreation departments.

Although the meeting was concerned primarily with existing housing developments, it was pointed out that nearly 100,000 additional units are now in the pre-construction or construction stage. The importance was emphasized of the local housing authority approaching the local recreation, park, school, and planning agencies just as soon as a decision is reached authorizing a new housing project.

Fourteen-State Study On Recreation Personnel Needs

SIGNIFICANT data on the supply and demand for recreation personnel in municipalities in the 14 states of the South will appear in the findings of an intensive study just completed as a joint project of the Southern Regional Education Board and the National Recreation Association.

The study, which was started two years ago, covers the whole field of recreation personnel in local government, private agencies, state and federal departments, hospitals, and institutions.

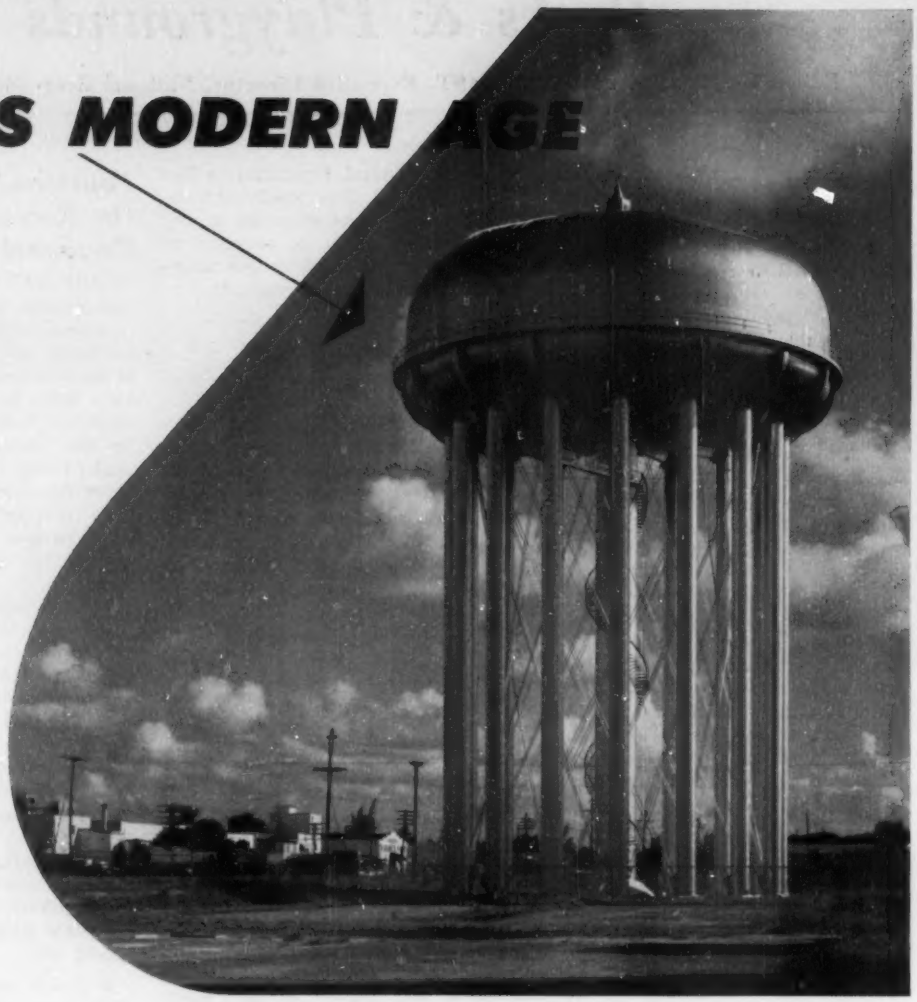
Two Southern educators prominently associated with the study will report in detail on the project at a general session of the 36th National Congress in St. Louis on Wednesday, September 29. Dr. Doak S. Campbell, President of Florida State University, and William G. McGlothlin, of the Southern Regional Education Board will describe the results of the 14-state study and outline steps to be taken by colleges and universities to meet the needs for additional recreation workers revealed by the study.

Among significant facts so far released are:

- Every municipality in the South with more than 100,000 population has full-time recreation workers, although only one out of 20 cities in the 5,000 to 10,000 population group employs such a worker.
- Recreation executives in the South estimated that between 1952 and 1957 they would add three full-time workers for every four they now employ.
- Between 1940 and 1952 the number of community recreation workers increased four-fold.
- One thousand graduates a year with majors in recreation are conservatively estimated as the need for the next few years.
- Although 111 students with bachelor's degrees based on recreation majors were graduated from Southern colleges and universities in 1952, there were 264 students enrolled as recreation majors during 1952-53.

Nine faculty members were giving full time to the recreation curriculum.

IN THIS MODERN AGE



In this age of record population growths, an increasing number of municipal water systems are finding it difficult to keep abreast of customers' demands. Both careful planning and action are required to keep facilities up-to-date and service satisfactory.

Miami, Florida recently erected this Horton® radial-cone elevated tank at 76th Street to improve their distribution system. Perhaps a Horton elevated tank can assist your community in solving the problems of water storage, maintaining uniform pressure, and lowering pumping costs. Frequently insurance ratings are more favorable for a community because of the increased fire protection that only an adequate water supply can provide.

Periodic inspection and painting normally suffice to keep a welded steel Horton elevated tank in excellent condition. Standard capacities are available from 500,000 to 3,000,000 gallons. Our nearest office will welcome your request for information or quotations without obligation.

HORTON

WELDED STEEL

STORAGE TANKS

CHICAGO BRIDGE & IRON COMPANY

Plants in Birmingham, Chicago, Salt Lake City, and Greenville, Pa.

Atlanta 3.....2114 Healey Bldg.	Los Angeles 17.....1503 General Petroleum Bldg.
Birmingham 1.....1562 North Fiftieth St.	New York 6.....3308—165 Broadway Bldg.
Boston 10.....1002—201 Devonshire St.	Philadelphia 3.....1616—1700 Walnut Street Bldg.
Chicago 4.....2127 McCormick Bldg.	Pittsburgh 19.....3202 Alcoa Bldg.
Cleveland 15.....2236 Midland Bldg.	Salt Lake City 4.....501 West 17th South St.
Detroit 26.....1501 Lafayette Bldg.	San Francisco 4.....1533—200 Bush St.
Havana .....402 Abreu Bldg.	Seattle 1.....1301 Henry Bldg.
Houston 2.....2101 C & I Life Bldg.	Tulsa 3.....1625 Hunt Bldg.

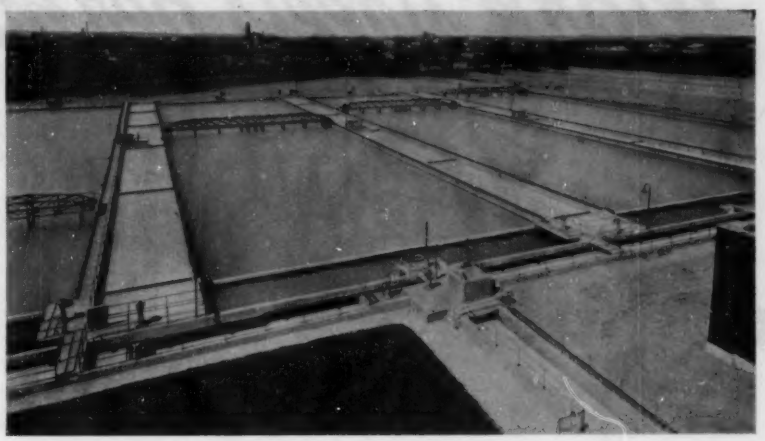
Water Supply & Treatment

Largest Well-Water Treatment Plant

THE WORLD'S largest softening plant treating well water is now in operation in Dayton, Ohio. The over-all capacity of the plant is 96,000,000 gallons per day.

Designed by Alvord, Burdick and Howson, Chicago consulting engineers, the plant incorporates many cost-cutting features. One was the use of common-wall construction for the four flocculators and clarifiers. The flocculators are 350 feet long, 16 feet wide, and use Type P Dorrco flocculator equipment. The settling basins are 90 feet wide, 333 feet long, and use Dorrco Monorakes to remove the sludge.

The plant is operated by Lloyd C. Huffman, director of water and sewage.



Dayton's softening plant sets a record as the world's largest to treat well water.

How Water Shortages Shape Up

WATER SHORTAGES seem widespread, reports C. G. Paulsen, chief hydraulic engineer, Water Resources Division, U. S. Geological Survey. However, most of the shortages in 1953 represent inadequacies of man-made systems, rather than nature-provided supply.

This year, three areas could develop serious water-supply problems if summer precipitation does not develop. The Midwest, the Southeast, and the Southwest all appear to have trouble spots.

In the Midwest, centering on Indiana and including West Virginia, Ohio, Illinois, and eastern Missouri, streamflow during May was about half of normal, with wells reaching record lows. A year ago, in this area, streamflow was almost twice normal.

In the Southeast, centering on southern Georgia and northern Florida, streamflow during May was only about half of normal as compared to well above normal a year ago. Water levels in May were at, or near, record lows.

In the Southwest, centering on Utah, Colorado, New Mexico, Arizona, and southern California, the runoff during May was about half of normal. Water levels were at, or near, record low stages. Reservoir contents were near normal except at San Carlos Reservoir in Arizona which was low. In southeast Texas, runoff was well below normal during May but was about the same as it was a year ago.

Despite these conditions, Mr. Paulsen believes that the over-all nationwide outlook does not appear discouraging.

Free Water for Steam Irons

THE Water Department of Batavia, N. Y., is making a good-will gesture to its customers by offering free, distilled water for use in steam irons. Batavia is a city of 19,000 in western New York.

Water Superintendent Nelson M. Fuller is circulating this offer with the quarterly water bill, inviting housewives to visit the filter plant and bring their own containers. The distilled water is obtained from boiler condensate that is passed through a zeolite filter to remove the boiler compound.

The pleasure of the housewives has been expressed in "letters to the editor" of the local newspaper. They not only express appreciation for the water but admiration for the attractiveness and splendid condition of the filter plant itself.

Any Way
YOU LOOK AT IT
Safe Water
. . . COSTS LESS
"Well, I'm certainly getting a good look at the workings of the Public Service
PUBLIC SERVICE COMMIS
OF HALIFAX
THE COST OF A
⅓ LOAF OF BREAD
WILL PAY FOR THE
Safe Water
YOUR HOUSEHOLD USES TODAY

WATER IN THE NEWS: Left, an advertisement of the Indianapolis Water Company; center, one of a series of informative advertisements which were carried in the newspaper by the Halifax (Nova Scotia) Public Service Commission, using the Willing Water symbol; right, another of the Indianapolis series. These are from the American Water Works Association publication, "*Willing Water*."

Mark streets permanently

With **Robbins** LIFETIME® VINYL

STREET MARKERS

PATENT PENDING

and save!

LONG WEARING

Made of tough, weather resistant LIFETIME® Vinyl, Robbins Street Markers go down quickly and permanently, without serious interruption of traffic. They outlast painted lines over twenty times. These revolutionary new markers are completely impervious to the effects of weather, oils, greases, acids and salt. Snow plows and scrapers pass over them without damage.

EASY TO INSTALL

The easiest of all markers to install. Special training of personnel is not necessary; no expensive, cumbersome special equipment to slow down installation. Robbins Markers are installed quickly and inexpensively – simply clean spot on pavement, apply cement and install.

HIGH VISIBILITY AND REFLECTION

Robbins Lifetime Vinyl Street Markers give definite, easy to see lines . . . day or night. Bright Traffic Yellow and Snow White colors stand out clearly. Because of the slight 1/8" rise and intermittent spacing, give better traction and eliminate wet weather slipping on painted lines.

CUT MAINTENANCE COSTS

Initial cost of installing Robbins Markers is amazingly low. Skilled labor is not necessary. No expensive special tools or equipment is required for installation. There are no holes to drill, no spikes to drive, no heating required. Long lasting markers effectively cut maintenance cost by eliminating the frequent and expensive job of painting traffic lines.

Write, wire or phone for samples and complete information today

ROBBINS TIRE & RUBBER CO., Inc.

TUSCUMBIA, ALABAMA

Public Safety

Too Many Police Stations?

A DRASTIC REVISION of conditions to suit a new type of municipal operation—such as indicated when a city goes from foot patrol to radio cars—requires a police chief, public safety director, city manager, or mayor of courage and initiative.

Cleveland, Ohio, had such a public safety director in 1938 when police stations were reduced from 16 to 6, and traffic fatalities were reduced 47% as described by former Public Safety Director Eliot Ness in THE AMERICAN CITY for November 1939.

It took seven years or more, apparently, before the wisdom of Cleveland's move penetrated official thinking in other large cities. Philadelphia reduced its police stations from 36 to 24 since 1947. New York City dropped two of its 87 stations since 1947; Chicago reduced its 39 stations by one. The number of police stations and the number of people per police station are given below, as compiled by the Buffalo Municipal Research Bureau, Inc., of Buffalo, N. Y.

	Stations	*People Per Station*
Los Angeles (will add 4)	12	164,200
Cleveland	6	152,470
Detroit	15	123,300
Baltimore (incl. 2 subs.)	10	94,970
New York City	85	92,850
Chicago	38	92,290
Philadelphia	24	86,320
St. Louis	12	71,400
Washington, D.C.	14	57,290
Boston	17	47,140

Baraboo Fire Department Times River Rescue

LAST SUMMER a dummy was thrown into the Baraboo River that runs through the heart of our town (population 7,260), and a call for help was sent in to the fire department, six blocks from the river. In 14 minutes our stainless steel lifeboat had the dummy ashore. The boat is also available for rescues at Devil's Lake State Park, located three miles from town.

We have, through the generosity of one of our public-minded businessmen, been presented with a new 10-hp Johnson Seahorse outboard motor for use on our rescue boat.

R. ROMELFANGER, *Chief*
Fire Department
Baraboo, Wis.

Stainless steel rescue boat powered by a 10-hp Johnson Seahorse outboard motor.

Driving Will Be a Sober Job in New York City

POLICE COMMISSIONER F. W. H. ADAMS announced on July 14, 1954, an all-out drive on drunken driving in New York City. He contemplates extending use of the Drunkometer, which determines intoxication by testing the breath, to all five boroughs by means of mobile units, which will carry the instrument wherever needed. Since last November, the Drunkometer has been used only in the Borough of Manhattan, but it will now cover all boroughs and will be operated by members of the Intoxicated Drivers Testing Unit, which has been enlarged from 15 to 23 men.

The improvement brought into the traffic picture in New York City by the Drunkometer is interesting. In the first six months of 1953, only 16 persons were convicted of drunken driving in Manhattan and 25 were freed. In the first half of 1954, while using chemical tests, there were 44 convictions and only 23 acquittals. More important, according to Chief Magistrate John M. Murtagh, the number held for trial in Special Sessions increased from 18 before the Drunkometer was used to 55 afterwards.

Commissioner Adams pointed out that the program is in compliance with Section 70, Paragraph 5 and Section 71-A of the New York State Vehicle and Traffic Law, and that the procedures have been accepted by the Courts, both Magistrates' Court and Special Sessions. Decisions in these Courts have held the Drunkometer to be an accurate and reliable device for the chemical testing of intoxication.

The Commissioner said:

"The Police Department regards the acceptance of this device as a tremendous step forward in enforcing the law relative to drunken driving. Heretofore, law-enforcement officers have been handicapped by the difficulty of establishing legal proof of intoxication. Now we are in a position to crack down on drunken driving in this city with full force.

"We intend to make it painfully clear to the motorist that if he is going to drive, he should not drink. It is our belief that in time, with the help of this instrument, we will be able to free the streets of New York from the menace of the drunken driver."

Low Cost Aerial Ladder Trucks

FIRE departments in small cities are now offered aluminum aerial ladders of 50 feet and of 65 feet in three and four sections, respectively, that mount on your truck. They are made by Memco, 1007 N. W. 36th Street, Oklahoma City 3, Oklahoma.

Supervising Installation of the 8-inch line for Boro of Bethel, Penna., were (from L. to R.) C. K. Stroh, Partner, The Chester Engineers; Joseph Diulus, President, Diulus Construction Company; C. W. Tanner, Associate Engineer with The Chester Engineers; E. T. Davis, Partner, The Chester Engineers; Tom Marshall, Jr., Acting Chief, Bureau of Tests, City of Pittsburgh; and Elliott Ohnsman, American Vitrified Products Engineer.

For fast foolproof installation, we suggest . . .

Amvit

JOINTED VITRIFIED CLAY PIPE

says C. K. Stroh,

Partner, The Chester Engineers

Pittsburgh, Pennsylvania

Mr. Stroh went on to say:

"We first specified Amvit Jointed Vitrified Clay Pipe on an 8-inch sanitary sewer line for the Boro of Bethel, Penna. The job had to be done under tough conditions—in wet trench and on steep grades.

"Yet, with new Amvit Jointed pipe we laid the line and tested it in *one day!* The 12 psi hydrostatic tests proved that the Amvit Jointed line will withstand pressures far exceeding any required."

The Chester Engineers' experience with Amvit Jointed Clay Pipe is exactly like that of many other engineers, contractors and plumbers who now specify *Amvit.*

Availability of Amvit Jointed pipe dependent upon quantities and delivery date required.

For more information, write or call American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

SINCE 1900

AMERICAN

American Vitrified Products Company

CLEVELAND, OHIO

Patent Pending

PLANTS ACROSS THE NATION...Brazil, Indiana • Chicago, Illinois • Cleveland, Ohio • Crawfordsville, Indiana • Detroit, Michigan • East Liverpool, Ohio Fenton, Michigan • Grand Ledge, Michigan • Lisbon, Ohio • Los Angeles, California • Milwaukee, Wisconsin • South Bend, Indiana • Uhrichsville, Ohio

Street Cleaning & Snow Removal

A $27,000 Cleanup in Street-Cleaning Costs

TRUCK-LOADING attachments in Amarillo, Texas, are slicing our street-cleaning costs at least $27,000 per year without sacrificing spic-and-span standards of cleanliness. With the new machine, a Holmes-Owen front-end loader mounted on a Ford F-600 dump truck, one man loads, hauls, and disposes of dirt, trash, and other street debris.

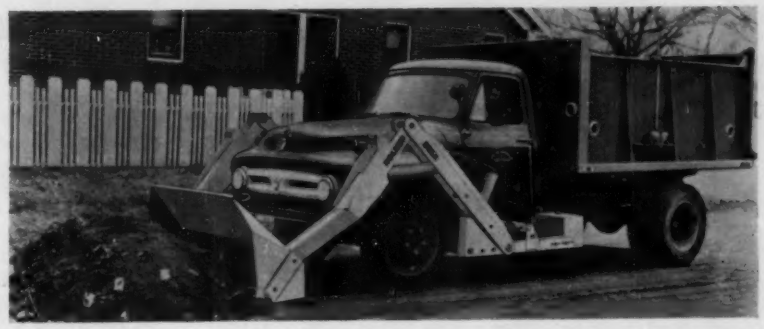
Two of these self-loading trucks have replaced a 15-man crew and five 4-yard dump trucks that were previously required to handle sweepings collected from the 395 miles of curbing within Amarillo's city limits. The two trucks are equipped with 9-yard dump bodies specially built by the Hobbs Manufacturing Company, of Fort Worth, Texas. These units function only eight or nine hours a day to keep up with the sweeping machines which are on day and night shifts.

Although one man is all that is required to operate a truck and loader, we have given each driver a helper. The second man directs traffic around pick-up sites in congested areas and handles final cleanups with broom and shovel. Even then we have cut labor requirements from 15 to 4 men, halved the number of trucks needed, and eliminated many complaints about delayed pick-ups. The change to the use of these self-loading machines has had wonderful public relations value.

There is no way to determine the exact savings in reduced equipment investment, and maintenance expense, but they are considerable. We can pinpoint the annual labor savings at $27,000, nearly five times the cost of a truck and loader combined.

To insure efficient operation of these trucks equipped with loaders, we hand-picked two drivers from the 15-man crew who, at various times, operated these units over a two-week test period. The runners up in this contest were assigned as helpers. After selection of the personnel to operate these units, we zoned the entire city and put each of the units on a regular work schedule. Downtown streets get a daily sweeping; no street in the city goes unswept for more than eight days at a time.

First thing each morning the self-loading truck picks up debris collected during the night by three sweeping machines. Dump sites are marked with flares and listed on a report sheet given to each loader operator. This job is usually finished by the time the four day-shift sweepers have been out long enough to dump one or two loads. For the rest of the day, each truck and loader collects the debris dumped by the two sweepers. The units often have time to work on other small projects.



Two of these truck loaders pick up all the street sweepings in Amarillo, Texas.

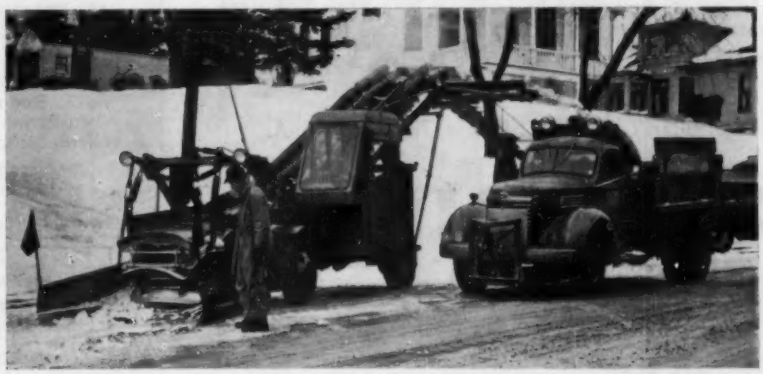
The loader attachment is operated by dual, hydraulic cylinders which makes it possible to accurately control all movements of the loader bucket. The horizontal cylinders between the arms give the bucket a forward movement, or crowding action, when loading. The loader lifts ½ yard per bucket, loads the average truck in 4 minutes, and can be installed on most 1½- to 2-ton trucks. The Holmes-Owen truck loader has been on the market for several years and is manufactured by The Ernest Holmes Company, of Chattanooga, Tenn.

CLIFFORD L. DAVIS
City Personnel Manager
Amarillo, Texas

A Good Vote-Getter

THE PUBLIC has been lavish with its compliments of the administration of Mayor John Kaiser, Port Washington, Wis., since the city has reinforced its snow-removal equipment with a new, conveyor-type snow loader. The loader has a swivel-type chute that will allow it to load either at the rear or the side. It has demonstrated its ability to load stones, bottles, and other debris as well as snow without difficulty.

Port Washington city crews use the same loader in the summer to pick up pea gravel, premixed asphalt, and earth from excavating jobs. The loader is an Athey Model 3 force-feed type.

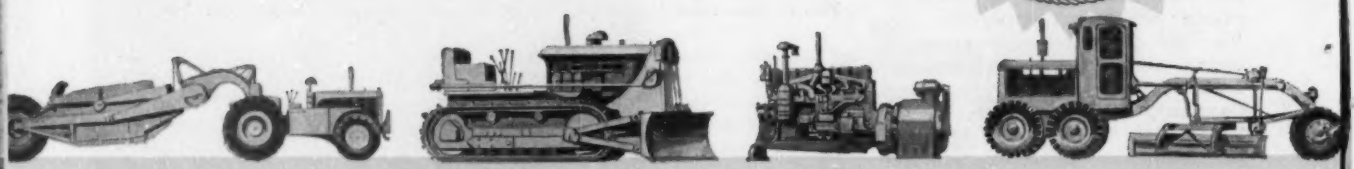


Snow doesn't stay long when this conveyor goes to work in Port Washington, Wis.

STRETCH YOUR TAX DOLLARS WITH USED EQUIPMENT!

See your CATERPILLAR DEALER for a "Bonded Buy"—used Caterpillar-built equipment with a guarantee of $10,000. Other big values, too!

BONDED BUY



If budget restrictions are keeping you from getting new equipment, you can stretch your dollars by buying reliable used equipment from your Caterpillar Dealer. Every used tractor, motor grader, scraper and engine in his lot is honestly labeled and backed in writing, so you can be sure of getting real value for your money.

For example, only your Caterpillar Dealer offers you a "Bonded Buy"—used Caterpillar-built equipment with a guarantee, backed by a bond of $10,000, issued by The Travelers Indemnity Company. There's big-production value in these machines — and your dealer backs them with a bond. He also offers you big values in two other classifications — "Certified Buy" and "Buy and Try." These cover used units of any make!

Cost-wise and work-wise, you'll find what you want at your Caterpillar Dealer, headquarters for the best buys in new and used equipment. For the best buys for *your* tax dollars, see him today!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

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BEST BUYS IN NEW AND USED EQUIPMENT

DIESEL ENGINES • TRACTORS
MOTOR GRADERS • EARTHMOVING EQUIPMENT

YOU KNOW WHAT YOU'RE BUYING FROM YOUR CATERPILLAR DEALER

Your Caterpillar Dealer offers three classes of used equipment, and backs each one in writing. You buy with confidence, sure that the equipment is honestly described.

(1) "BONDED BUY." Only the best in used Caterpillar Diesel Tractors, Engines, Motor Graders and Earthmoving Equipment. Each "BONDED BUY" machine is backed by a Dealer's Guarantee Bond equal to the purchase price of the unit up to a maximum of $10,000. This provides a guarantee for thirty days against unsatisfactory performance due to defective parts. If a part should prove defective within the guarantee period under the normal conditions of your job and with proper maintenance, your dealer will put your unit back into operating condition *with no charge to you for parts and labor* up to the amount of the bond. The Dealer's Guarantee Bond is backed by The Travelers Indemnity Company. Your Caterpillar Dealer gives you this protection with your purchase of a "BONDED BUY" unit. Look for the "BONDED BUY" symbol—it's your assurance of the best in used machines.

(2) "CERTIFIED BUY." "Certified Buy" covers units of any make in good condition. Your performance guarantee is in writing backed by your Caterpillar Dealer.

(3) "BUY AND TRY." Bargains in used machines of any make. Buy and try them for a period mutually agreed upon by you and your dealer. Each "Buy and Try" unit carries his written "money-back" agreement.

"BONDED BUY" assurance effective in the United States and Canada

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CATERPILLAR TRACTOR CO., Peoria, Illinois, U. S. A.
GENTLEMEN: Send me, without obligation, more information on "Bonded Buy."

*Name*_____

*Street Address*_____

*City*_____ *Zone No.*_____ *State*_____

Street Construction & Maintenance

Asphalt Street Construction Notes

A Low-Cost Beauty Treatment

MANY CITIES find themselves with streets that have been given light, dust-laying surface-treatment over many years until the surface has become a hard, unmanageable wavy crust. St. Paul, Minn., takes these streets and transforms them into neat, useful citizens.

An Athey portable breaker and force-feed loader makes the transformation. It picks up the crustlike surface, along with about a half-inch of subgrade, mixes the two and then relays it as a stabilized base.

If more asphalt appears to be needed, this is added by a pressure distributor and with Nostrip, an additive that helps make the asphalt cling to the aggregate. Nostrip, a product of Maguire Industries, New York City, is mixed with the asphalt at the rate of 1½% by volume. Using it, street crews can work in bad weather

Kokomo, Ind., also has reworked its surface-treated streets to put them in good, respectable condition. In this case, City Engineer Ray E. Havens used a Seaman Pulvi-Mixer to mix the asphalt and soil, adding asphalt where he felt it was needed.

In some places, stone was also added to lighten the fine soil. After rolling this reworked base, he surfaced it by the standard inverted-penetration method. The costs ran to only 45 cents per square yard and the work did away with the expense of annual street oiling.

Precoated Aggregate

DUSTY AGGREGATE, an annoyance to the public, has no place in a city's asphalt surface-treatment program. Cincinnati throttles the dust by pre-coating the aggregate with asphalt. According to R. C. Lewis of Cincinnati's Division of Highways, the aggregate is first dried at the asphalt plant and then run through a pug mill containing an MC-2 cutback asphalt. Temperature of the stone runs 130°F., and the bitumen, 100°F. The coated aggregate cures for 10 days before being used as a seal coat.

Mr. Lewis likes to use MC-5 at the rate of 0.25 of a gallon per square yard for the surface treatment on hot days, and RC-5 on cooler days. The aggregate application averages 19 pounds per square yard. Using the coated aggregate, he reduces the amount of loose stone approximately one-third. The street cures for 72 hours.

Nonskid Streets

TIRE MANUFACTURERS have no monopoly on providing nonskid safety for motorists. City engineers also are learning how to build better coefficients of friction into their street surfaces. Today's street, according to Bulletin No. 27 of the Highway Research Board, should have a coarse-grained surface if it is made of asphaltic concrete, or it should use a rock chip if it is built according to surface-treatment methods.

The bleeding asphalt street, with its glazed surface and coefficient of friction approaching that of ice, has been ruled out of the city engineer's handbook.

The University of California's Professor Ralph Moyer recommends the use of sharp, angular crushed stone chips, or crushed gravel, for surface treatment. He finds that with this material the friction value increases by 25% over surfaces using rounded aggregates. A granite-type aggregate with a coarse-grained structure appears to be most satisfactory.

City-Owned Asphalt Plant

LOCAL CONDITIONS should dictate the answer. However, as a guide, City Engineer James L. McLeod of Bangor, Maine, believes that a city can start thinking about purchasing an asphalt plant when it plans to pave at least 10,000 square yards per year, requiring at least 1,600 tons of material. Bangor uses a Barber-Greene plant rated at between 20 and 30 tons per day.

Nevertheless, some relatively small cities not conveniently located to hot-mix plants have found it wise to operate their own plants: Fergus Falls, Minn. (population 10,000), is one; Lamar, Colo. (population 8,000), is another; and Crown Point, Ind. (population 5,000), is a third.

A Dust Douser

LOW-TRAFFIC STREETS in low-value areas still can keep dust from being a problem by the use of Dustrol, a Socony-Vacuum product applied at the rate of 0.3 of a gallon per square yard.

In Gordon, Nebr., City Manager L. M. Lovejoy had to use it instead of the conventional seal coat because some of the city's streets run through a section of ground with a high water table. Had he used the conventional seal coat, the water would not have evaporated and the subgrade would have softened. Dustrol kept the streets maintenance-free for 18 months.

First Highway Materials Exhibit

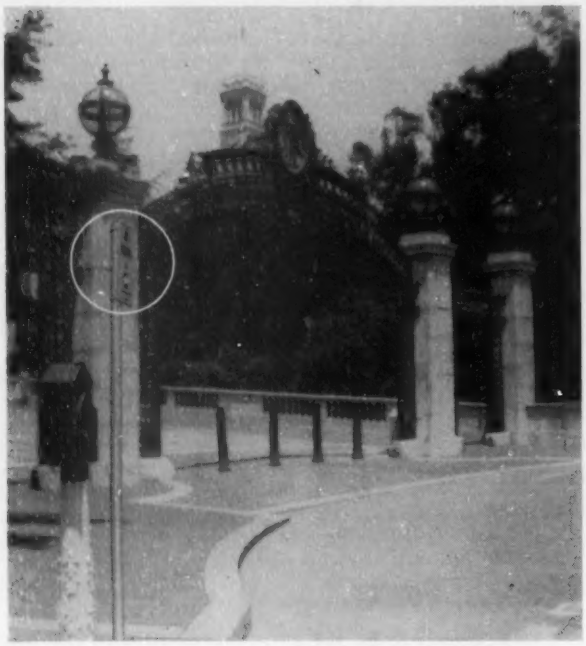
THE LARGEST EXHIBIT ever assembled, devoted exclusively to street and highway materials and supplies, will be assembled at New Orleans, January 10-13, 1955 at the American Road Builders' Association annual meeting. No equipment will be permitted at the exhibit.

Plans for the exhibit are being developed by Armand E. Keeley, president of the Prismo Safety Corporation, Huntingdon, Pa., and chairman of the executive committee of the ARBA Materials and Supplies Division. The exhibit will be held in the International Hall of the Roosevelt Hotel.

Examples of some of the major expected exhibits include aggregates, bituminous material, portland cement, additives for bituminous material and concrete, aluminum products, traffic markings and paint, salt, calcium chloride and other chemical stabilizers, traffic signs, engineering and drafting instruments, business machines, expansion joints, joint fillers and sealers, guard rails, culverts and drains, wood preservatives, reinforcing materials, aerial survey equipment, explosives, and radio and electronic devices.

In Berkeley . . .

STEELBINDER Fastens the Signs



A. J. Gerrard & Company, a leader in the steel strapping field, salutes another leader among America's most progressive cities, Berkeley, California. Always watchful for better and more efficient methods, Berkeley's Traffic Engineering Department found Steelbinder the outstanding, safe method for fastening signs. Many other leading cities have reported like findings. We invite you to investigate and compare.

Sather Gate, beautiful entrance to the University of California campus in Berkeley. At the left, a "No Parking" Sign strapped the Steelbinder way.

TRY BERKELEY'S METHOD

. . . the Steelbinder Way of strapping signs. Our "Street Signs" brochures will familiarize you with this time-saving, economical, more efficient method of sign strapping. Write for them today . . . A Steelbinder service representative will gladly help you solve your sign strapping problems.

STEELBINDER

- Strapping in stainless or galvanized steel for sign applications. Also aluminum and many other strap types to fill every sign strapping requirement.
- Complete line of sign-attaching accessories—brackets, extension arms, bolts, and seals in stainless and galvanized finishes.

A Berkeley sign crewman applies an arterial stop sign the Steelbinder Way. Note also the Steelbinder strapped street signs.

STEEL STRAPPING

A. J. Gerrard & Company

1952 HAWTHORNE DRIVE
MELROSE PARK (CHICAGO SUBURB) ILLINOIS

WAREHOUSES IN 6 KEY CITIES

BIRMINGHAM	OAKLAND
CLEVELAND	PORTLAND
NEWARK	MELROSE PARK

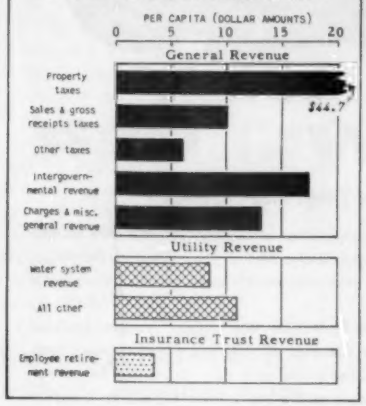
Sales-Service Offices in 45 Principal Cities

Our Municipal Notebook

New Census Bureau Report On City Government Finances

THE NATION'S 481 largest cities spent $7,281,000,000 last year providing municipal services to their almost 62,000,000 residents. This total expenditure was 8% higher than it was in 1952, according to a U. S. Census Bureau report titled "Summary of City Government Finance in 1953." The figures, released August 20, 1954, reveal that the upward climb of city governmental spending, which has been paced by inflationary trends and rapidly growing urban population since the early 1940's, continued during 1953.

FIG. 2.--PER CAPITA AMOUNTS OF CITY REVENUE, BY SOURCE: 1953

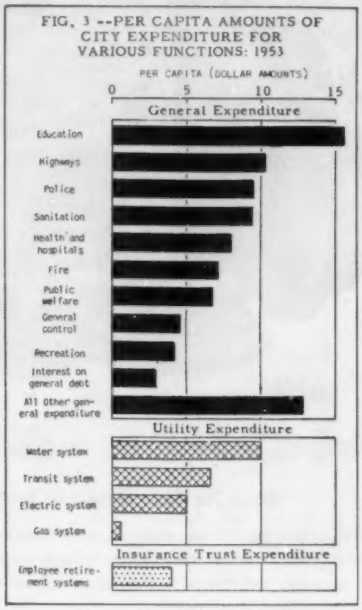


The most significant increase in the city budget picture appeared in the capital outlay columns. Expenditures for permanent improvements were over 13% higher in 1953 than in 1952. On the other hand, increases for all other city expenditures were just under 8% in 1953.

Thus, it appears that the construction of new schools, highway improvements, water-supply and sewerage improvements, and other permanent facilities to serve growing populations is becoming one of the principal factors in the rising government costs.

The two accompanying charts, reprinted from the Census Bureau report, show a breakdown of per capita expenditures and revenues for the 481 cities, all of which have populations over 25,000. Property taxes form the largest source of revenue, with intergovernmental revenue (chiefly fiscal grants and other forms of aid from the federal and state governments) following as the next largest source of funds. The expenditure breakdown shows that education and highway expenses top the list, with police, sanitation, and health and hospitals coming next in line.

FIG. 3 --PER CAPITA AMOUNTS OF CITY EXPENDITURE FOR VARIOUS FUNCTIONS: 1953



Three additional publications of the Census Bureau that have been released recently and which should be of interest to municipal officials are: "Government in the United States in 1952," price 30 cents; "State Payments to Local Governments in 1952," price 45 cents; "Local Government Structure in the United States," price 50 cents.

Conference Will Mark Regional Plan Assn.'s 25th Anniversary

AT ITS ANNUAL CONFERENCE, to be held this year on October 6 at the Hotel Roosevelt, the Regional Plan Association of New York will celebrate its 25th anniversary.

The theme of the luncheon and afternoon sessions will be: "The Next 25 Years in the New York Metropolitan Region." Henry T. Heald, Chancellor of New York University, will make the luncheon address. New York's City Administrator, Luther H. Gulick, and the Executive Director of the Port of New York Authority, Austin J. Tobin, are among the experts in the fields of public administration and transportation who will participate in the afternoon sessions.

The three morning sessions will cover problems of municipal planning and zoning.

EDITORIAL NOTE: Inquiries and reservations should be addressed to the Conference Secretary, Regional Plan Association, 205 E. 42nd St., New York 17, N. Y.

REPRESENTATIVE MUNICIPAL BOND ISSUES
August 1 to August 19, 1954

Date of Sale			*Purpose*	*Average Maturity (Years)*	*Net Interest Cost Per Cent*
8– 5–54	P't Angeles, Wash.	$65,000	General Oblication	6-1/4	2.19
8– 9–54	Kent, Ohio	28,280	Street Improvement	6	1.68
8– 9–54	Hollywood, Fla. ..	249,000	Pub. Improv. Revenue	5	2.945
8– 9–54	Bethel, N. Y.	21,800	Town Barn and Equip.	8-1/3	2.48
8–10–54	Wilmington, Mass.	60,000	Water	6-1/2	1.635
8–10–54	Steele Co., Minn...	136,000	Drainage	4-1/3	1.428
8–10–54	Norwich, N. Y....	47,500	Parking Area	4-3/4	1.38
8–10–54	Williamsport, Pa. .	200,000	Flood Control	10-1/2	1.611
8–12–54	Chicopee, Mass. ..	100,000	Sewer Construction	10-1/2	1.938
8–12–54	La Porte, Ind.	700,000	Sewage Works Revenue	13-1/6	2.34
8–12–54	Edina, Minn.	175,000	General Obligation Imp.	5-5/6	2.36
8–12–54	Moreland Hills, O.	30,000	Village Hall	8-1/3	2.85
8–12–54	Winner, S. D.	93,000	Gen'l Obligation St. Imp.	10	2.405
8–16–54	Lincoln Co., Wis. .	505,000	County Building	8	1.624
8–17–54	Babylon, N. Y....	904,000	Incinerator Plant	5-1/2	1.55
8–19–54	Newburyport, Mass.	220,000	Sewer	9-3/4	1.777

COMPILED from THE DAILY BOND BUYER

"Lower the Broom" on High Sweeping Costs ...

Cleaner sweeps on all types of terrain—high-crown roads, inverted gutters, airports, freeways, etc.

Four-wheel hydraulic brakes for maximum safety. Cab protects against overhanging limbs. Greater visibility for driver.

Sweep more gutter miles per day . . . Maneuver easily around parked cars.

with

MOBIL-SWEEPER

Most For Your Money at Budget Time: Mobil-Sweeper

MANY COMMUNITIES are reporting three times the gutter miles at one-half the cost with MOBIL-SWEEPER—the *modern* machine that sweeps, sprays and carries the full load direct to the dump. Pick-up crews and expensive loading equipment are thus eliminated; more miles of streets are swept cleaner at lower cost.

MOBIL-SWEEPER MAKES STREET SWEEPING A ONE-MAN JOB. This rugged, compact machine likes "tough going"... thrives on tortuous terrain. One man sweeps deep, wide gutters, sharp curb returns, steep hills, under low-hanging trees or other obstructions with ease. Right and left gutter brooms sweep dirt, bottles, cans, other trash into the path of the big full-floating pickup broom—leaving a clean 10-ft. swath (7'3" with single broom) behind.

Then, when the 2½ cu. yd. dirt hopper is loaded, the MOBIL-SWEEPER pops off to the dump—at maximum traffic speeds. Less time is wasted "dead-heading" to and from the dump . . . more refuse is picked up and disposed of with fewer stops.

DEPENDABLE OPERATION—MAXIMUM SAFETY. Mobil-Sweeper is teamed with a modifed International Harvester chassis and the famed Silver Diamond valve-in-head engine for better performance, fewer repairs. Four-wheel hydraulic brakes protect pedestrians; a truck-style "Safety Top" cab protects the operator, gives him the visibility—and safety—he needs to do the cleaning job.

For complete information on how Mobil-Sweeper solves your sweeping problems—without creating budget problems . . .

Write for the facts!

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THE CONVEYOR CO. 3260 E. Slauson Ave., Los Angeles 58, Calif. AC-02

Gentlemen: Please send catalog, with complete details and specifications for the Mobil-Sweeper.

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STATE_____

National Chamber Appoints Panel on Highways, Streets, and Urban Transportation

TWENTY-FOUR business and professional leaders from all parts of the nation have been appointed by Clem D. Johnston, President of the Chamber of Commerce of the United States, to serve as a Special Advisory Panel of that organization on Highways, Streets, and Urban Transportation.

The panel will work in conjunction with the National Chamber's Transportation and Communication Department Committee and also with its Construction and Civic Development Department Committee.

Thomas A. Ballantine, President, Louisville Taxicab and Transfer Company, and a director of the U. S. Chamber, is chairman of the new group, the initial meeting of which will be held in Washington on September 15.

A major concern of the Panel will be in assisting the Chamber to develop comprehensive recommendations to lay before President Eisenhower dealing with his recently proposed $50,000,000,000 national highway-improvement program. This group will also aid in the Chamber's forthcoming series of better roads conferences.

New Corporation Helps Relocate Families from Blighted Areas

LEADERS of commerce and industry in Cleveland, Ohio, have established a nonprofit corporation called the Cleveland Development Foundation to promote the construction of housing to accommodate families displaced from blighted areas being redeveloped by the city government. The entry of the new organization into the relocation scene is enabling the City of Cleveland to proceed in its urban redevelopment program for which a $7,000,000 bond issue has been approved by the voters.

The first project being promoted by the Foundation is the construction of a 400-unit housing development on 20 acres of land owned by the Republic Steel Corporation. The steel company has offered to make the site available by deeding the land at a minmum cost.

Capital totaling $2,000,000 for the Foundation is being derived from the sale of 4% development notes and memberships at $500 each. Interest on the notes, while cumulative, will be paid only if earned and the principal is to be returned in 10 years.

The Foundation will attempt to interest private firms in building and operating new properties, and will provide assistance in interesting investors from other parts of the country. Where necessary the Foundation will also build and manage housing properties.

Urges So. African Towns To Set Limits on Growth

A RECOMMENDATION that cities and towns in the Union of South Africa set maximum limits on their future sizes, in the face of the rapid industrialization which the country is undergoing, was made recently at a South African conference of municipal officials.

With industry now the mainstay of the Union's economy, more and more people are migrating to the urban areas to staff the factories and commercial enterprises that are being developed. Because the bulk of the new industries do not have to be tied to any one location, the cities and towns of South Africa will have the opportunity to predetermine maximum sizes and to divert excess enterprises to alternative locations.

In proposing the growth limitations, Professor F. C. v. N. Fourie of the University of the Orange Free State, said:

> In the past all growth was deemed desirable, and while our towns were still a long way from their optimum size this was understandable, but today, we are beginning to realize that bigger cities will not indefinitely be better and brighter cities; that while the "efficiency" with which a city can fulfill its dual function of providing places to work and places to live increases with size up to a certain optimum, this efficiency steadily declines once that optimum is passed, and at a later stage drastically deteriorates. . . . With the vast urbanization ahead of us this size could be reached in a number of our larger centers. And unless they have the vision and boldness to set their limits in good time, these cities may be irreparably spoiled by over-expansion.

To help the South African communities set and achieve their target sizes, Professor Fourie recommended the preparation of over-all forecasts of future urban growth in South Africa, based on estimates of the natural resources and economic and social requirements of the nation.

Airports Can Be Better Neighbors

To the Editor, THE AMERICAN CITY:

Your July issue carries a discussion entitled "Airports Can Be Better Neighbors," which seems to me to call for some comment.

Speaking as an engineer, I can say that it is technologically possible, now, to provide airport facilities of a design and at locations that will not interfere with neighbors' rights to peaceful use of their property, and at the same time furnish ground transportation that will offer the customer better service than is now offered.

Operating airplanes for profit, more than any other business, is allowed to endanger its neighbors, to interfere with their peace and even get laws passed granting it certain rights in neighboring land without compensation.

To add insult to injury, airline terminal property, publicly owned, is usually free of real estate taxes (although in some cases making certain payments in lieu of taxes). The airline business in New York City occupies more land than all other private transportation companies together, yet serves but a handful of people compared to those served by the fully taxpaying companies. The taxpaying railroads were required to spend considerable sums in alleviation of discomfort of their neighbors, while airlines are permitted not only to inconvenience their neighbors but actually to endanger them.

My feelings in this matter are strengthened by the fact that it is entirely practical to correct these conditions. The only obstacle I can see is the item of money. Since airline operation is conducted for profit, I see no reason for failing any longer to demand that this business be conducted with as much regard for public safety and convenience as any other.

JOHN G. KNEILING
Engineering Consultant
Staten Island 14, *New York*

For features of the new Housing Act of 1954 of special importance to municipalities, see pages 120 and 121 of this issue.

GREATER WORK CAPACITY
with LOWER EQUIPMENT INVESTMENT
HOPTO
DIGGER • SHOVEL • CRANE
HOPTO
MODELS AVAILABLE
SPC— Shown at right
TM— For Mounting on any 1½ Ton Truck or Larger
CTM—For Rear-End Mounting on Crawler Tractors
SPT— Self-Powered Trailer Type
PTO—Power Take-Off Powered Trailer Type

EASY-TO-OPERATE HOPTO LOADS, TRENCHES, EXCAVATES!

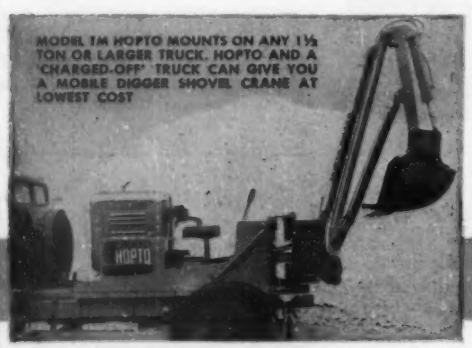
Here's the low-cost, easily operated unit you have been waiting for! The new and improved Model SPC combines all the features of the other work-hungry HOPTO models plus the light bearing pressure of 3pounds per square inch necessary for work on swampy soils. Bearing pressure of 17" track pads is so light that unit may be moved across landscaped areas without disturbing turf.

Complete unit is Badger built. The 20% overload safety factor and the built in by-pass and relief valves protect the completely hydraulic Model SPC. Four easily-actuated levers conveniently banked for the operator control every movement of HOPTO from 190° swing to 16'4" reach . . . from 11'4" digging depth to hydraulic control of bucket that permits 'straight-down' excavation for foundations, septic tanks, etc.

In average to heavy soils, the Model SPC has an hourly trenching capacity of 60' of 2' trench 6' deep. Fast cycling and ease of operation gives HOPTO a loading capacity of 40 cubic yards per hour with a quarter-yard bucket. Larger buckets are available for handling bulky materials. With backhoe, HOPTO has a loading clearance of 8'6"; 10' clearance with shovel bucket.

OPTIONAL EQUIPMENT MAKES HOPTO A MOBILE CRANE

A crane boom to replace dipper stick converts HOPTO into a mobile crane for spotting timbers, trusses, steel . . . for placing heavy equipment, spotting culvert sections, unloading bulky equipment. Crane boom may also be equipped with hydraulically controlled grapple with a loading clearance of 18'. Same attachments are available for TM Model shown at left.


MODEL TM HOPTO MOUNTS ON ANY 1½ TON OR LARGER TRUCK. HOPTO AND A 'CHARGED-OFF' TRUCK CAN GIVE YOU A MOBILE DIGGER SHOVEL CRANE AT LOWEST COST
HOPTO

Write TODAY for complete information on the model best suited for your particular needs. HOPTO's low cost holds down equipment investment; helps you maintain or exceed schedules!

BADGER MACHINE CO.
WINONA, MINNESOTA • DEPT. D

General Omar N. Bradley Appeals For the "Missing" Millions

AS National Campaign Chairman of the United Defense Fund, General Omar N. Bradley is pointing out that municipal officials and civic groups can render an important patriotic service by cooperating this fall in Community Chest and United Defense Fund Campaigns.

A letter to THE AMERICAN CITY from General Bradley reads as follows:

"We're very grateful for your cooperation in helping us alert the nation to the importance of the United Defense Fund. Carrying our message in THE AMERICAN CITY, as your editor did in May,* gave a wonderful boost to the UDF program, and will be reflected, I feel, in much greater public understanding and support.

"In order to continue the much-needed USO job at home, and expand it overseas, as well as provide adequate services to the defense-impacted communities in our own country, we are going to need four and a half million dollars more for 1955 than UDF raised last fall for this year. I am glad to report to you that many of our country's Community Chests and United Funds have promised to try to help us get this additional sum through their campaigns this coming October and November."

* See THE AMERICAN CITY for May 1954, page 7.

Dispersal Seminar Planned

A ROUND-TABLE consideration of civil defense problems and methods to be held at the Esso Conference Room, Esso Standard Oil Company Building, 15 West 51st St., New York City, September 16, at 8 p.m., by the Civil Defense Research Associates is announced by S. A. Anthony, President of this national forum and clearing house for civilian and industrial protection. Pointing to the confused state of mind that seems prevalent among civil defense leaders and the general public concerning the proper methods and effectiveness of protecting urban populations, Mr. Anthony states that it is CDRA's intention to conduct the meeting, whose subject is "Dispersal Problems in the Atomic and Hydrogen Age," on as informal a basis as possible, so as to allow frank and full discussion of all the known techniques that may have been developed by the participants and others.

Mr. Anthony also states that CDRA is anxious to hear from authorities and individuals who have been giving these problems some thought, so that the conference may have as broad a body of background information as possible. Such data will be combined in a preseminar briefing for panel members particularly. It is anticipated that a comprehensive seminar report will be available as a result of this conference.

Leading state and municipal authorities, civil defense leaders and other specialists are being invited to participate. Interested persons may learn more about the meeting from the Civil Defense Research Associates, Inc., 475 Fifth Avenue, New York 17, N. Y.

Philadelphia's Mayor Warns of Segregation in Public Housing

RECOGNIZING public housing as an indispensable adjunct to redevelopment and the attack on blight, Mayor Joseph S. Clark of Philadelphia, at the recent Conference on Housing and Discrimination, emphasized the need for measures to prevent public housing from becoming a force for increasing racial segregation in shelter.

In outlining the discrimination problems that face Philadelphia, Mayor Clark said that the tides of city dwellers flowing out into the suburbs are being replaced in Philadelphia by increasing waves of nonwhites, who, having no other housing available to them, are forced to accept the discarded and frequently blighted dwellings left behind by the suburb seekers. With most of Philadelphia's proposed redevelopment projects located in predominantly Negro neighborhoods and with public housing the only place to relocate the Negroes who will be displaced, it appears to Mayor Clark that public housing is in danger of perpetuating rather than alleviating the segregation problem. Amplifying this point, he said:

> It is not pleasant to contemplate the thought of large low-rental housing projects becoming segregated Negro communities. We all accept the idea that public housing should be nondiscriminatory and that every project should present a wholesome pattern of integrated occupancy.
>
> But the arithmetic is against us. There are two Negro families eligible by income for public housing shelter for every eligible white family and the trend is getting worse. During the 10 years prior to 1950, the number of white families eligible for public housing declined by 40%, while the eligible Negro families increased by 41%. The ratio of eligible applicants for public housing projects is now running four Negroes for every one white.

What can be done to change this pattern? Mayor Clark reported the following ideas under consideration by the Philadelphia Commission on Human Relations and the city's housing and redevelopment agencies:

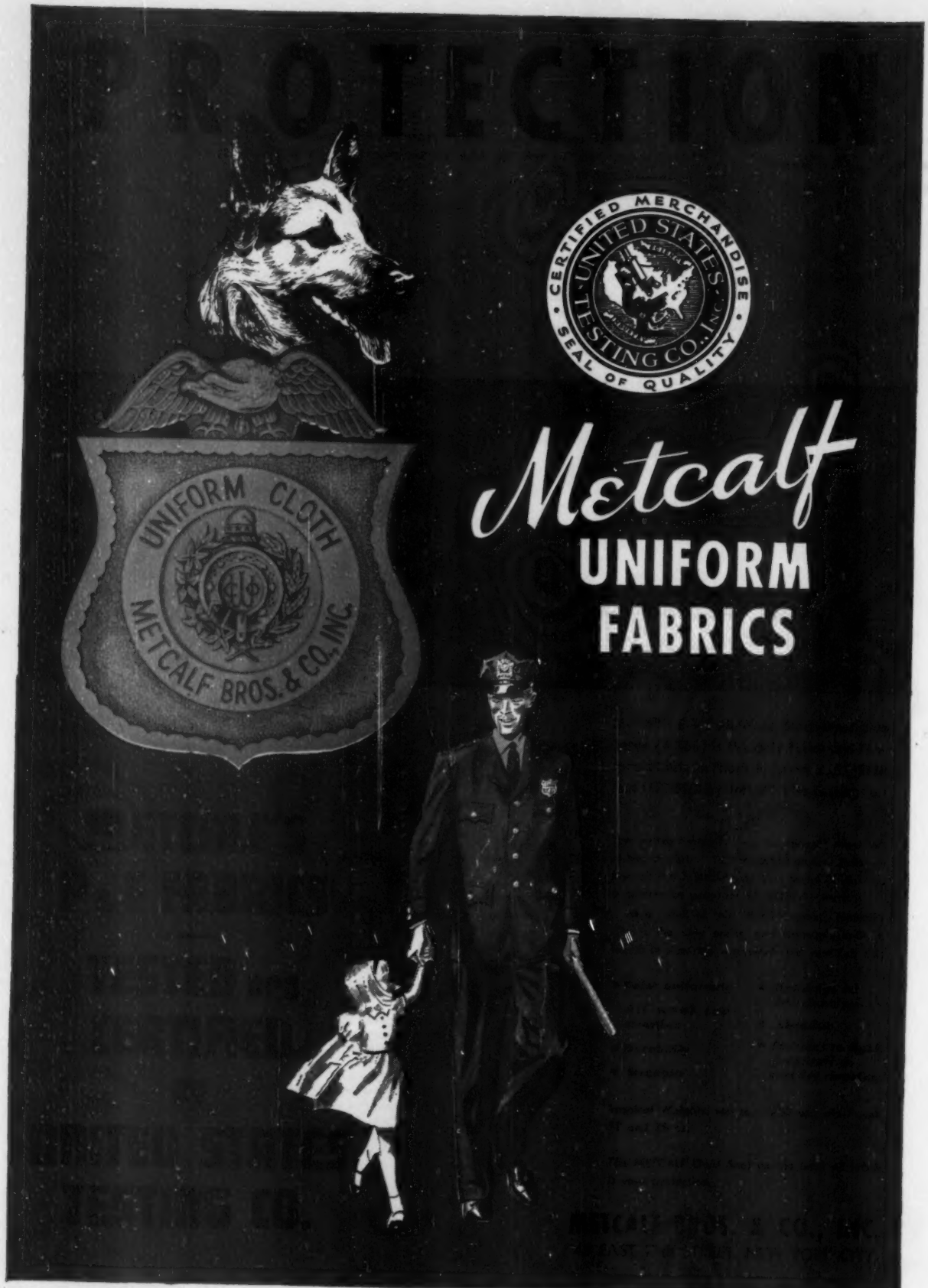
First, more Negroes must be helped to get higher up the income ladder. With more money in his pockets, the Negro will be in a stronger competitive position for new rather than second-hand housing. To this end the Commission on Human Relations is enforcing Philadelphia's Fair Employment Practices Ordinance.

Second, restrictive practices in the housing market must be eliminated, particularly in new housing and in suburban areas. Prohibitions against discrimination in FHA housing should be applied and enforced to advance this goal, according to Mayor Clark.*

Third, radically changing neighborhoods must be stabilized. A program of information, education and community organization is making strides in Philadelphia in checking panic and holding the white population in neighborhoods where relatively small numbers of Negro families move in.

Fourth, redevelopment programs must be conceived and executed in bold terms. Plans must provide for schools, recreation, community facilities and mass transportation in order to make the new housing compete with the suburbs, and thus check the exodus.

* See the August 1954 issue of THE AMERICAN CITY (page 189) for an account of a New York City law forbidding discrimination in FHA-financed housing.


PROTECTION
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UNIFORM CLOTH
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Metcalf
UNIFORM
FABRICS

Some Current Municipal Trends

Rapid Municipal Growth Continues

A LARGE increase in single-family home construction is a principal characteristic of the first six months of building activity throughout the country according to George W. Kline, economist of the F. W. Dodge Corporation.

In a report titled, "Midyear Review of Construction Contract Awards," Mr. Kline stated, "Contract awards for residential construction totaled $3,981,000,000 in the first half of 1954, up 22% above the like period of last year." What the figures reveal is that communities throughout the nation are continuing to grow at a record pace and that there will be no let up on the pressure for new facilities such as schools, water supply and sewerage improvements, etc., during the remainder of 1954 at least.

With the bulk of the new homes being produced speculatively, it is also apparent that subdivision activity, especially in suburban communities in metropolitan areas, is continuing at a remarkable rate.

More Urban Renewal Plans To Check Decay at Centers of Cities

WHILE the suburbs are growing spectacularly, the centers of many cities are quietly rotting. To check this rot, however, dynamic city conservation programs to save whole neighborhoods from becoming slums are cropping up more and more frequently.

Last month, THE AMERICAN CITY reported in detail on the extensive neighborhood rehabilitation plans being carried out in Chicago. This month we are carrying the story of the Providence renewal program. In addition, we have recently learned of plans that are being developed in Denver, Colo., and in Cincinnati, Ohio.

In Cincinnati, the proposed plan calls for the establishment of a special staff to work under the direction of an Urban Renewal Coordinator. The staff would prepare renewal plans for each individual neighborhood in the city needing rehabilitation. The plans would specify which housing was to remain and which was to be torn down and redeveloped. The plans would also indicate the new public improvements needed to make the neighborhood a satisfactory one—parks, playgrounds, schools, off-street parking, street widening, etc.

The proposed program would call for a budget of approximately $1,000,000 per year. This would include $150,000 to $200,000 per year for personnel; $300,000 to $350,000 per year for special city improvements in the various communities (small neighborhood playgrounds, elimination of isolated blighted structures, etc.); and $500,000 per year for matching contributions in areas needing redevelopment. Personnel for the staff to carry out the program would be partially drawn from the existing city housing, fire, health, and planning departments.

Municipal Finance Picture

THE LARGE expenditures involved in meeting the needs for schools, roads, and other facilities caused by rapid growth or involved in fighting in-city decay are focusing attention on municipal financing operations. In many cities the importance of finding out how many improvements will be needed, when, how much they will cost, and how they will affect the city's total financial picture is resulting in the preparation of detailed capital improvement programs. Recently it was reported to us that a six-year capital budget with a price tag of $134,000,000 plus an additional tag of $11,000,000 of special assessment improvements was completed by a special committee of the Milwaukee city government.

Similarly, a capital program totaling $404,000,000 and extending over the five-year period, 1954-59, has been adopted by the Council of the City of Philadelphia. Even smaller cities and towns are contemplating capital budgets. The City of Rye, N. Y., a community of some 13,000 persons, is in the process of developing an improvement budget that will list the city's present and future needs as well as the impact of the total cost on the local finances.

The question of where the money for such programs is to come from is producing a variety of recommendations. Here are several examples:

A proposal that Indiana cities, towns, and school districts be allowed to levy a surtax of up to 25% on the state income tax to finance local educational and other governmental services was one of 16 major recommendations included in a preliminary report of the Indiana Commission on State Tax and Financing Policy.

Public hearings on the report were scheduled during the summer and a final report will be drafted on the basis of these hearings. If the proposal is adopted, the tax would be collected by the State Gross Income Tax Division and the funds returned to the local taxing unit.

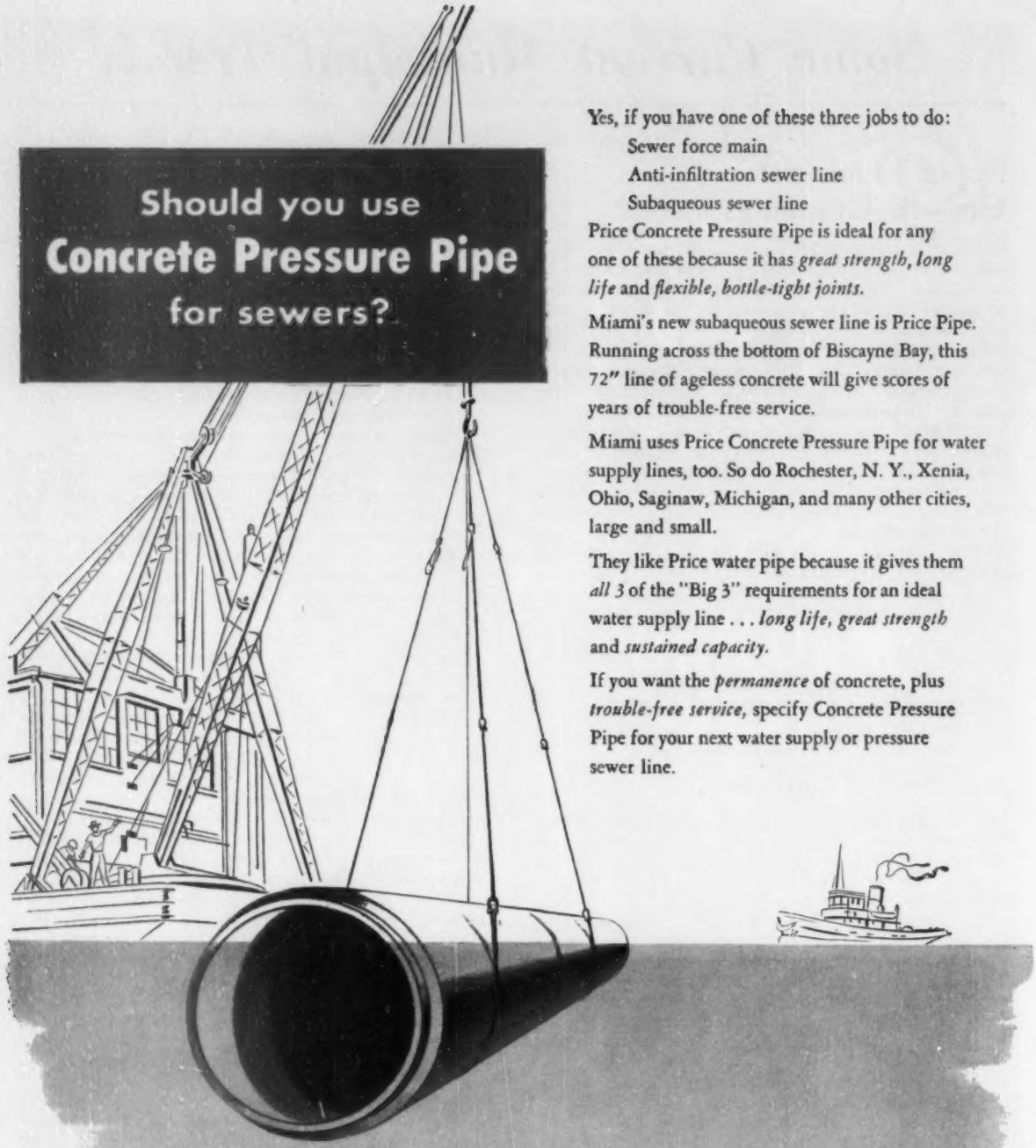
A proposal that Oklahoma City seek enactment of state legislation to enable it to impose a local motor-vehicle tax to finance a $12,000,000 "pay-as-you-go" street-improvement program, was included among recommendations submitted to city councilmen and members of the city commission by George Barton, Evanston (Ill.) traffic consultant.

The new municipal tax would be imposed at the rate of $9 on passenger automobiles and $18 on commercial vehicles and trucks. Barton estimated such a tax would yield $1,500,000 a year over a 10-year period. An auto use tax similar to this is now in effect in New York City.

While some areas were seeking to increase their revenues by tapping new sources, others were considering abandoning sources which have proved hard to collect from. For example:

Personal property taxes on household goods will be abolished in Colorado and Kentucky in the future if voters in those two states approve constitutional amendments recently adopted by the state legislatures. The Virginia legislature has also taken initial steps to abolish this type of tax. Since 1945, Maryland, South Carolina, Connecticut, and Louisiana have changed their state laws to exempt household furnishings from property taxation.

Should you use Concrete Pressure Pipe for sewers?



Yes, if you have one of these three jobs to do:

Sewer force main
Anti-infiltration sewer line
Subaqueous sewer line

Price Concrete Pressure Pipe is ideal for any one of these because it has *great strength, long life* and *flexible, bottle-tight joints.*

Miami's new subaqueous sewer line is Price Pipe. Running across the bottom of Biscayne Bay, this 72" line of ageless concrete will give scores of years of trouble-free service.

Miami uses Price Concrete Pressure Pipe for water supply lines, too. So do Rochester, N. Y., Xenia, Ohio, Saginaw, Michigan, and many other cities, large and small.

They like Price water pipe because it gives them *all 3* of the "Big 3" requirements for an ideal water supply line . . . *long life, great strength* and *sustained capacity.*

If you want the *permanence* of concrete, plus *trouble-free service,* specify Concrete Pressure Pipe for your next water supply or pressure sewer line.

Price Brothers Company

1817 East Monument Ave.
Dayton 1, Ohio

Concrete Pressure Pipe for Water Supply, Subaqueous, Pressure Sewer and Culvert Installations

Get What You Want—No Charge!

To obtain any of the following catalogs, write directly to the manufacturers. If you prefer, you may circle the identifying numbers on this coupon and mail to THE AMERICAN CITY, *470 Fourth Avenue, New York 16, New York, or use the colored Post Card at page 266.* 9/54

199	205	211	217	223	229	235	241	247	253	259	265	271	277	283
200	206	212	218	224	230	236	242	248	254	260	266	272	278	284
201	207	213	219	225	231	237	243	249	255	261	267	273	279	285
202	208	214	220	226	232	238	244	250	256	262	268	274	280	286
203	209	215	221	227	233	239	245	251	257	263	269	275	281	287
204	210	216	222	228	234	240	246	252	258	264	270	276	282	288

Name ..... **Position** .....

Address .....

Guaranteed Used Equipment

199 A good way to stretch the municipal budget is with "Bonded Buy" equipment; used Caterpillar-built tractors, motor graders, scrapers and engines that are guaranteed by the company. Additional values offered by Caterpillar dealers are "Certified Buy" and "Buy and Try," both of which include used machinery of all makes. To assure your community of the best in low-cost equipment, write the CATERPILLAR TRACTOR CO., PEORIA, ILL.

Sewage Lines Quickly Installed

200 Sewage works men can install a 50-foot line of vitrified clay pipe in only 15 minutes using the new Amvit Joint. An 8-inch sanitary sewer line for the Borough of Bethel, Pa., was successfully installed and tested in a wet trench and on steep grades in one day. A full description of Amvit jointed vitrified clay pipe is obtainable from the AMERICAN VITRIFIED PRODUCTS CO., NATIONAL CITY BANK BLDG., CLEVELAND, OHIO.

Garbage Grinders Lower Refuse-Collection Costs

201 Municipal officials urging a community-wide installation of these garbage grinders reduce their refuse-collection costs, and promote higher sanitation standards as well. There are Waste King Pulverators for use in the home, and special commercial models for schools, hospitals, hotels, and cafeterias. Each unit operates quietly, shredding food waste into tiny particles. Write the GIVEN MFG. CO., DEPT. AC-9, 3450 WILSHIRE BLVD., LOS ANGELES 5, CALIF.

New Economy for Cities and Towns

202 An interesting 16-page booklet from the Allis-Chalmers Mfg. Co., discusses tractors, motor graders, motor and pull-type scrapers, motor wagons, and power units which will save money on community projects. This modern equipment is currently active in many low-cost work programs aimed at developing better municipal services. Copies of the booklet may be obtained from the ALLIS-CHALMERS MFG. CO., TRACTOR DIV., MILWAUKEE 1, WIS.

Refuse Truck Collects Greater Loads

203 The Packer plate of this new M-B refuse body compacts loose garbage, boxes and crates quickly and completely, increasing the unit's load capacity and reducing maintenance costs. Refuse may be loaded onto the truck from either side, and large, bulky items are easy to load from the rear. Details on the low-cost Packer body are available from the M-B CORP., NEW HOLSTEIN, WIS.

Metal Tags for City Equipment

204 You can identify by aluminum tags all the equipment and devices owned by your town. These new tags are called DASHaplates and come in sizes up to 3 x 5 inches. They take as many as four lines of data. For descriptive folder, write DASHEW BUSINESS MACHINES, INC., 5886 SMILEY DR., CULVER CITY, CALIF.

2-Way Radio Expedites Police Work

205 Using the new, light-weight Field-Fone, a patrolman can establish instant contact with headquarters, other patrolmen or squad cars, transmitting and receiving clear FM voice conversations. The self-powered radio, less than half the size of comparable equipment, operates on dry batteries or rechargeable wet batteries. It is described in literature from the INDUSTRIAL RADIO CORP., 428 N. PARKSIDE AVE., CHICAGO 44, ILL.

Vinyl Markers Provide Permanent Traffic Lines

206 These easy-to-install Vinyl street markers furnish long-wearing traffic lines that are clearly visible around the clock. They are impervious to the effects of weather, oils, greases, acids and salt, and snow plows and scrapers pass over them without damage. Robbins street markers are made in traffic yellow and white. For complete information, write the ROBBINS TIRE & RUBBER CO., INC., TUSCUMBIA, ALA.

Rubber Safe-T-Cones Guide Traffic

207 Used during emergency street repair or in the traffic rush hour, these rubber Safe-T-Cones do an effective job of guiding traffic safely through congested areas. They are available in 18- and 28-inch sizes, painted or reflectorized, from the RADIATOR SPECIALTY CO., CHARLOTTE, N. C.

Steam Boilers

208 Fully equipped steam boilers that operate automatically on gas, heavy oil, or combination oil and gas, are offered by JOHNSTON BROTHERS, INC., FERRYSBURG, MICH. High and low pressures are available, with sizes ranging from 60 to 600 hp. Detailed specification forms and a free, new catalog will be furnished on request.

Portable Asphalt Mixer

209 Operating as a continuous mixer, the new HTD-JR unit handles 120 tons of cold mix or 20 tons of hot mix per hour. It features a metal conveyor, 24 inches wide, for proportioning the aggregate, and a 55-gallon per minute positive displacement pump for proportioning the bituminous material. Write K. E. McCONNAUGHAY, LAFAYETTE, IND.

New Sign Posts

210 A long-lasting sign post that requires minimum maintenance has been designed by the WAYNE PRODUCTS CO., DEPT. P., 1417 FISHER BLDG., DETROIT 2, MICH. Called the Pollak post, it is constructed of high carbon rail steel to guard against twisting and distortion. In addition, it provides a true sign bearing surface both front and back, facilitating the installation of two signs facing in opposite directions.

Fire Trucks

211 When you buy Seagrave fire equipment, you get equipment built completely by THE SEAGRAVE CORP. The dependable engines, frames, bodies, pumps, ladders, and other Seagrave fire apparatus are designed to operate as a unit. For full information, address the manufacturer at COLUMBUS, OHIO.

(Please turn to page 26 for more Bulletins)

Catalogs for You

Write directly to the manufacturer or use coupon on page 25

Economical Air Compressor

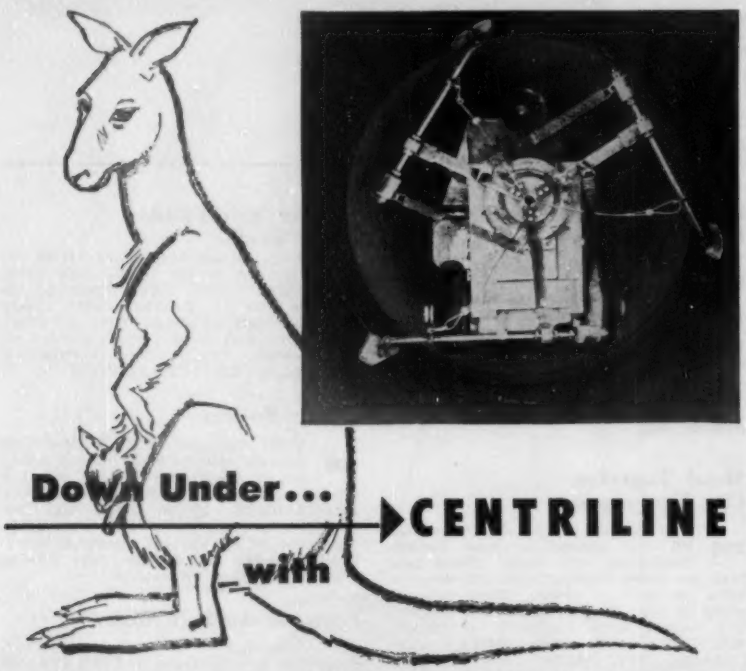
212 Cost-conscious street department officials guard against using oversize air compressors on their construction and maintenance jobs, when a smaller air compressor will do the job more economically. Powered by a heavy-duty Chrysler engine, the Smith 120-P compressor operates without coupling or clutch to provide a smooth, even flow of air. It is fully described in literature from GORDON SMITH & CO., INC., 425 COLLEGE ST., BOWLING GREEN, KY.

Traffic Signs, Buttons, Stencils

213 Should your city need steel traffic buttons, street signs of all types, large stencils for writing traffic directions on the pavement, as well as other traffic devices, make a note of where to get them. Write SARGENT & SOWELL, INC., GRAND PRAIRIE, TEXAS.

Heats and Remixes Asphalt

214 Street construction work is easier with the Heat-A-Mix, a new tailgate asphalt mixer that transforms cold stockpiled asphalt into a fresh, workable hot plant mix. This high-capacity pugmill and material heater has its own gasoline engine and propane or kerosene heating system. It is made by the WYLIE MFG. CO., INC., BOX 7086, OKLAHOMA CITY 12, OKLA.



In two of Australia's important cities, Centriline is currently playing a major role in the rejuvenation of water systems. The Metropolitan Water Sewerage and Drainage Board of Sydney, within the next five years, will Centriline approximately 60 miles of its water mains, 30" to 48" in diameter. In a suburb of Melbourne, the Hunter Water District has turned to Centriline for the cement-mortar lining of over 19,000 feet of 36" steel pipe.

Both of these Australian municipalities, like hundreds of others in the United States, have selected this process because they know that Centriline means absolutely no tuberculation or corrosion . . . lower pumping costs . . . higher carrying capacity . . . new pipe life . . . and no excavation and traffic tie-up. (The Centriline machine runs through the pipes while pipes remain in-place.) Add decades to the life of *your* water system—call on Centriline.

3,500,000 FEET OF EXPERIENCE

CENTRILINE CORPORATION

A subsidiary of Raymond Concrete Pile Co.

140 CEDAR STREET • NEW YORK 6, N.Y.

Branch Offices in Principal Cities of United States and Latin America

CEMENT-MORTAR LINING OF PIPES IN PLACE

Dependable Diesel Engines

215 A pair of Chicago Pneumatic Model 68 diesel engines rated at 180 hp, 600 rpm, generate over 1,000,000 kwhrs annually at The New Haven Arena. Other diesel, dual-fuel and gas engines offered by the company are capable of delivering from 120- to 1,750 hp dependably and economically. For further details, write the CHICAGO PNEUMATIC TOOL CO., 8 E. 44th ST., NEW YORK 17, N. Y.

Refuse Pick-up At Lower Cost

216 One operating lever starts the automatic loading and packing cycle of the new Colectomatic refuse collection body. The safety door closes, the load is pushed from the hopper to the body, and the safety door opens to return the empty hopper. This entire operation takes only 22 seconds. The unit's completely closed body permits sanitary, odor-free collection, and its short over-all length and height make it easy to handle. For *Bulletin BH-54103*, write THE HEIL CO., DEPT. 43104, 3043 W. MONTANA ST., MILWAUKEE 1, WIS.

Low-Cost Brush Disposal

217 You can cut your city's brush disposal costs in half by using the Fitchburg Chipper, a reliable "brush-eater" made by the FITCHBURG ENGINEERING CORP., DEPT. 189, FITCHBURG, MASS. The new unit provides efficient brush disposal in all kinds of weather. It is described in a new *Chipper Booklet* containing specifications, facts, and a number of valuable suggestions.

New Unit Does Many City Jobs

218 Municipalities can keep their Scoopmobiles busy all year 'round —loading bulk materials, charging black-top mixing plants, cleaning ditches, and scooping and loading snow from city streets. The machine incorporates power steering, planetary drive, and a 114-hp engine, and may be towed or driven to the job. It is available from MIXERMOBILE DISTRIBUTORS, INC., P. O. BOX 7527, PORTLAND 8, ORE.

Cuts Brush and Timber Quickly

219 The new Lombard chain saw cuts timber, up to 16 inches in diameter, quickly and efficiently and, with the addition of a special "brush-cut" attachment, makes fast work of brush cutting as well. Both the saw and attachment are made by the LOMBARD GOVERNOR CORP., 68 MAIN ST., ASHLAND, MASS.

New Street-Name Signs Shine at Night

220 The 1½-inch raised letters on these new street-name signs are reflectorized with glass beads for good night-time visibility. The letters are white on a black background. The aluminum name plates measure 3 x 18 inches. Write STELLO PRODUCTS CO., 704 S. MAIN, BOX 349, HUTCHINSON, KANS.

New Traffic-Light Controller

221 Wired for 19 signal circuits, the new "EF 20" controller is easily accessible from the front of the cabinet, facilitating the installation of extra features with a few simple tools. The multi-dial unit, designed for all of your heavy-duty traffic, is made by the EAGLE SIGNAL CORP., MOLINE, ILL.

(See page 29 for more Bulletins)

● A city in the Northwest finds the extra strength needed for heavy flourescent luminaires in Hapco Poles, even under strong wind and ice loading.

● A Massachusetts town has converted valuable existing, old style pedestal standards to a modern lighting system by using Hapco top extensions with brackets.

● Hapco Floodlight Poles on car lot in Houston, Texas. Special lowering device permits maintenance from the ground.

Versatile

HAPCO ALUMINUM ALLOY STANDARDS

● Hapco Lighting Standards and Brackets at the new Valley Forge Interchange of the Pennsylvania Turnpike.

● Hapco Pedestal illuminated sign posts furnished to Highway Department, State of New Jersey. Easy access to wiring is provided in the base.

● Hapco pedestals provide beautiful illumination for parks.

● A Hapco traffic light pole stands appropriately, at the corner of the Alcoa Building, Pittsburgh, the first skyscraper to be erected with all aluminum exterior.

HUBBARD ALUMINUM PRODUCTS COMPANY

MANUFACTURERS OF HAPCO QUALITY ALUMINUM PRODUCTS

A Division of HUBBARD and COMPANY

6301 Butler Street • Pittsburgh 1, Pa.

WRRS *Parking Lot Gate*

THE PARKING LOT "ATTENDANT" THAT WORKS 24 HOURS A DAY WITHOUT PAY

Here's how the WRRS Parking Lot Gate operates: Car stops at gate, and driver, without leaving car, deposits coin. Gate immediately raises to admit car. Coin boxes can be engineered to accept coins or tokens . . . or to operate by key. Gate lowers as soon as car clears. A special safety device prevents the gate from coming down on the car.

Here's the answer to the biggest problem facing the parking lot industry—HIGH COST OF LABOR. WRRS Electric Parking Lot Gates Model No. 200-PL eliminate the need for costly labor and yet can be depended upon to do an outstanding job twenty-four hours a day—seven days a week.

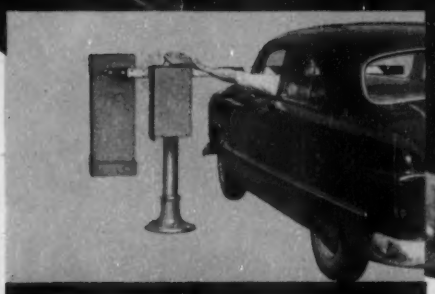
WRRS Gates are ideal for preventing non-authorized parking on private lots at hospitals, schools, plants, airports, suburban railroad stations, and retail stores. Parking lot owners can now reduce overhead including insurance and boost profits by using WRRS Gates as either full-time "attendants" or just during non-rush hours.

WRRS Gates require collection at one or two coin boxes (depending upon the arrangement) as compared to the need for collecting from each individual parking meter used in an off-the-street parking area. Send for detailed information and prices.

Made by the Builder of

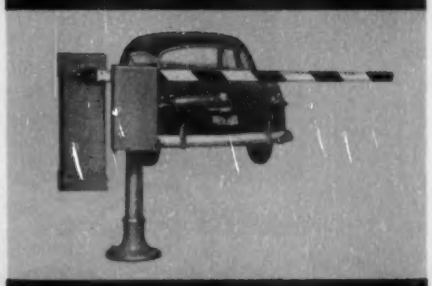
10,000

RAILROAD CROSSING GATES



Driver approaches lot . . . stops at gate . . . deposits coin or token.

Gate arm raises permitting car to enter.



Gate arm resumes horizontal position preventing entrance of succeeding car.

WESTERN RAILROAD SUPPLY COMPANY

General Offices and Factory

2430 South Ashland Avenue, Chicago 8, Illinois

Which Catalogs Interest You?

Write directly to the manufacturers or use the coupon on page 25

Rock Salt Combats Slippery Streets

222 Slippery streets and roads present a real traffic problem and should be cared for immediately. The snow and ice which cause this hazardous condition are swiftly and economically removed with Cayuga rock salt, available in bulk or bags from the CAYUGA ROCK SALT CO., INC., MYERS, N. Y.

Spaces Cars at Public Parking Lots

223 Cities can park anywhere from one to 10,000 cars quickly and efficiently with the aid of Har-Bar barriers. Designed to assure proper car spacing, the barriers are high enough to stop a car, yet just low enough to clear bumper guards. They are easy to install, and require minimum maintenance. Write HARRIS-BARRIER, INC., 3301 N. TIBBS, INDIANAPOLIS 22, IND.

Use Digester Gas Engines In Your Sewage Plant

224 Every day your city's sewage-treatment plant is producing, free of charge, gas that can be used to develop power. Every day, more and more cities are installing engines such as those made by the CLIMAX ENGINE & PUMP MFG. CO., to generate this low-cost power, so badly needed around every sewage-treatment plant. Climax engineers will give you the complete story with typical case histories. Address the company at 208 S. LaSALLE ST., CHICAGO 4, ILL.

Traffic Lines Which Last Longer

225 Center and cross-walk lines of ready-prepared Veon compound dry instantly without smudging, and are said to last five times as long as ordinary paint lines. The compound is available in white, yellow or red, and is easily applied by a single operator. Details on this new, permanent line marking material will be furnished by the VEON CHEMICAL CORP., 22-09 BRIDGE PLAZA NORTH, LONG ISLAND CITY 1, N. Y.

New Coupling Makes Pipe Installation Easier

226 The resilient gaskets in Dresser couplings greatly expedite pipe installation, at the same time, eliminating many of your alignment problems. These gaskets permit pipe deflections up to 3°. Furthermore, the couplings solve expansion and contraction problems in sewage and industrial waste lines. Write the DRESSER MFG. DIV., 69 FISHER AVE., BRADFORD, PA.

Escalator Type Refuse Collection Truck

227 Efficient, low-cost refuse loading is facilitated by the automatic, continuous loading and packing featured in the new Roto-Pac. This dependable refuse-collection truck has an escalator compactor body, capable of handling straight ashes, garbage or mixed refuse. It has a small hopper opening which reduces spillage. Further data on the Roto-Pac may be had by writing the CITY TANK CORP., 53-09 97th PL., CORONA, L. I., N. Y.

Stops Rust, Sample Free

228 Applied to water tanks, fences, stop signs, fire hydrants and other city equipment, Rust-Oleum 769 damp-proof red primer prevents rust, reducing both maintenance and replacement costs. The primer is brushed over remaining rust after a thorough scraping and wirebrushing. It is followed by a Rust-Oleum finish coating, available in a variety of colors. For a free sample of the primer, together with complete literature and color charts, write the RUST-OLEUM CORP., 2512 OAKTON ST., EVANSTON, ILL.

Black-Top Paver Assures Uniform Streets

229 You can make streets and roads as smooth and uniform as ribbon off a roll with an Adnun Black Top Paver, equipped with Fluid Level. Working with any material, the unit maintains an accurate thickness and uniform density, providing a level surface without dips. How an Adnun Paver will aid street construction in your community, is discussed in literature from the FOOTE CONSTRUCTION EQUIPMENT DIV., BLAW-KNOX CO., 1904 STATE ST., NUNDA, N. Y.

Steel Swimming Pools

230 Lower the maintenance cost of municipal swimming pools by installing leakproof, steel units that only require an occasional coat of paint. Koven steel pools are available in a variety of sizes, styles and designs, in indoor and outdoor models. Address KOVEN STEEL SWIMMING POOLS, INC., 154 OGDEN AVE., JERSEY CITY 7, N. J.

Locate Engine Troubles

231 *Locating Troubles in the Diesel Engine*, is the title of the new Maintenance Clinic chart from the ADVERTISING & SALES PROMOTION DEPT., WORTHINGTON CORP., HARRISON, N. J. A handy reference for the operating engineer, the chart covers symptoms and causes of troubles in lubrication, air system, fuel system, exhaust, settings and balance, and water system. Ask for *RP*-739.

Waste Receptacles

232 There are no springs, weights or hinges in the construction of a Solar waste receptacle, therefore, there is nothing to repair or replace. The units are designed with one moving part—a free-swinging top that is pushed open and that closes by itself. For a full description of the Solar waste receptacle, write the SOLAR-STURGES MFG. DIV., PRESSED STEEL CAR CO., INC., DEPT. 9-D, MELROSE PARK, ILL.

Steel Gratings

233 Weldforged steel gratings for small and large areas such as floors, walkways, platforms and stairs, are offered municipal water, sewage and electric plants in a variety of spans. For a booklet giving sizes, specifications and illustrations, write KERRIGAN IRON WORKS, INC., NASHVILLE, TENN.

Economical Well Screens

234 In discussing the advantages of using Johnson well screens, the company points to less drawdown, greater specific capacity, and lowest pumping cost per million gallons of water. These screens are designed for longer wear, and dependable, low-cost operation. They are described in literature from EDWARD E. JOHNSON, INC., ST. PAUL 14, MINN.

Cuts Pipe Quickly

235 You can cut 8-inch standard steel or cast-iron pipe in less than five minutes, reports this company, using a new hinged pipe cutter. The unit cuts pipe, 2½- to 12 inches in diameter, quickly and efficiently. It is made by the REED MFG. CO., ERIE, PA.

Sewer-Cleaning Equipment

236 Flexible power bucket machines clean sewers quickly and inexpensively, regardless of weather. Whatever your sewer problem — be it sand, gravel, grease, roots, or rocks — there is a special model sewer cleaner to do the job. All models are described in a new catalog from the FLEXIBLE SALES CORP., 3786 DURANGO AVE., LOS ANGELES 34, CALIF.

New Truck Crane Lifts 15 Tons

237 The Koehring 205 truck crane with its ½-yard dipper features a 15-ton lift capacity on a 25-foot boom. It is easily converted to standard excavator and crane attachments and, as a crawler crane, boasts a 10-ton capacity and 30- to 50-foot boom lengths. A copy of the new Koehring *205 Bulletin* is available from the KOEHRING CO., MILWAUKEE 16, WIS.

Combination Pipe and Leak Detector

238 One instrument, the Dualtronic, does the work of two, locating pipe and pipe leaks quickly and accurately. Only one man is needed to operate this new, light-weight unit, cutting time and labor costs. The Dualtronic is made by THE GOLDAK CO., 1544 W. GLENOAKS BLVD., GLENDALE 1, CALIF.

Furnace Heats Metals Faster

239 It takes only 15 minutes to heat 200 pounds of lead with the new Jumbo instant lighting furnace. In addition, the unit will melt large quantities of babbitt, zinc and compounds quickly and efficiently. Designed by the INSTO-GAS CORP., DETROIT 7, MICH., the Jumbo furnace may be operated on soft or uneven ground and, when used with a 50-foot connecting hose, will service a wide area without moving the cylinder.

Fire and Police Equipment

240 Everything your community may need in the way of equipment for fire and police department use can be obtained from W. S. DARLEY & CO., CHICAGO 12, ILL. Darley's full line is described in a number of new, illustrated catalogs, available on request.

(Please turn to page 30 for more Bulletins)

Obtain these Booklets Free of Charge!

Write directly to the manufacturers or use the coupon on page 25

Smooths Irregular Street Surfaces

241 An economical way to smooth out corrugated, rutted and irregular bituminous surfaces on your streets, airport runways and roads, is to use the new Littleford-Clarkmoore Heater-Planer. The unit eliminates corrugations on hills, at stop signs, and in gutters, and gets rid of troughs and ruts developed by heavy traffic. It will plane top surfaces to prepare for seal coating or resurfacing with plant mix. Details on the hydraulically operated Heater-Planer are available from LITTLEFORD BROS., INC., 453 E. PEARL ST., CINCINNATI 2, OHIO.

New Water Pump Prevents Leaks

242 This horizontally split double-suction water pump is designed with special "Floating Sealing Rings" for minimum leakage and maximum efficiency. It is made in 2- to 20-inch sizes, and may be connected in series on a single bedplate for heads exceeding those developed by a single pump. For *Bulletin 179* write the MORRIS MACHINE WORKS, BALDWINSVILLE, N. Y.

Special Body for Maintenance Truck

243 The Series 350 light-duty maintenance body gets maintenance and installation work done with a 2-man crew. The compact, fold-over derrick sets 40-foot poles, and a ladder can be quickly erected for overhead work. Compartments are equipped to carry tools and materials for many service operations. Details will be furnished by McCABE–POWERS AUTO BODY CO., 5909 N. BROADWAY, ST. LOUIS 15, MO.

Manhole Frames and Covers

244 *Catalog R*, second edition, describes and illustrates a complete line of manhole frames and covers, catch-basin inlets, and various other items designed to meet all your municipal construction requirements. For your copy of this 140-page booklet, write the NEENAH FOUNDRY CO., NEENAH, WIS.

Photoelectric Controls Turn Street Lights On and Off

245 The moment daylight drops in Providence, R. I., F-P photoelectric controls automatically turn street lights on. This is done regardless of the hour, the season or the weather. At daybreak, F-P controls automatically shut street illumination off. There are some 3,000 of these controls operating in Providence, and the city reports a failure rate of only 2.29% of all units annually. Write THE FISHER–PIERCE CO., INC., 94 PEARL ST., S. BRAINTREE, BOSTON 85 MASS.

Increased Air Pressure For Portable Tools

246 This 125-foot air compressor holds from 90 to 100 pounds of pressure in two heavy paving breakers, enabling men and tools to do about 40% more work than can be done with a 105-foot compressor. The company will furnish low-cost air compressors in six standard ratings, ranging from 75- to 600 feet. Get *Catalog JC-1* from THE JAEGER MACHINE CO., 505 DUBLIN AVE., COLUMBUS 16, OHIO.

Manhole Adapters Aid Street Improvement

247 When you have to resurface your streets, don't tie up your work crews, slow down paving progress, and cause dangerous inconvenience to traffic by using cumbersome, expensive, old-fashioned methods of raising manhole castings to do the new grade by hand. All you have to do is drop an A. Reed Wilson manhole adapter onto the casting and your work is over. Write to A. REED WILSON CO., 1320 McGEE ST., KANSAS CITY 6, MO., for all the details.

Heavy-Duty Engines Power Ditchers and Excavators

248 Designed to deliver high torque power at moderate rpm for lower fuel and maintenance costs, these Minneapolis-Moline engines are now at work operating Barber-Greene ditchers and Warner-Swasey Gradalls. A wide range of MM power sizes and fuel types, including the firm's new "energy-cell" diesel unit, are described in literature from MINNEAPOLIS-MOLINE, INDUSTRIAL DIV., MINNEAPOLIS 1, MINN.

Protect Busy Railroad Crossings

249 Railroad-crossing hazards may be eliminated with Model 10 automatic signals, designed by the WESTERN RAILROAD SUPPLY CO., 2428 S. ASHLAND AVE., CHICAGO 8, ILL. These signals are quick and easy to install and simple to operate. Furthermore, they avoid accidents due to operation failure.

Push-Button Dual-Fuel Engine

250 By simply pushing a button, the Superior Model 65 diesel engine is transformed from diesel to dual-fuel operation, providing lower operating costs and greater fuel economy. The engine is made in 6- and 8-cylinder models, in sizes to fill requirements from 420 to 1,250 kw, or 580 to 1,765 bhp. Data on each model are contained in literature from THE NATIONAL SUPPLY CO., SPRINGFIELD, OHIO.

Kills Weeds Quickly

251 Sprayed, sprinkled or used as a dry powder, the new N P weed killer works its way into the waxy plant surfaces, and penetrates to the leaves, stems and roots of all vegetation. It is non-inflammable, non-volatile, and won't corrode. The company also offers a selective weed killer, E.W.T., that eliminates plant pests without injuring lawn grasses. Write the C. B. DOLGE CO., WESTPORT, CONN.

Bitumuls Simplify Street Maintenance

252 Bitumuls, an asphaltic binder in emulsion form, will coat all types of aggregate, wet or dry, for faster and easier street maintenance. Applied cold, it bonds well with every type of clean surface, eliminating the need for a special prime or tack coat. Various grades of bitumuls are available for fast setting and sealing, surface treatment, and penetration work. Write the AMERICAN BITUMULS & ASPHALT CO., 200 BUSH ST., SAN FRANCISCO 4, CALIF.

Clears Snow Faster

253 You don't need special vehicles to operate these new Baker snow plows. A variety of models, complete with "Roll-Action" blades, are available for all sizes and types of trucks. The blades lift snow from the pavement quickly and economically, with minimum engine effort. For *Bulletin No. 1003*, discussing the sectional trip plow and the new Baker "V" plow, write THE BAKER MFG. CO., SPRINGFIELD, ILL.

Solve Your Water Problems

254 If your municipality has any problems relating to water — be it ground-water development, a modernization program, maintenance or equipment —Layne & Bowler will help you solve them. Aside from making water wells and vertical turbine pumps, the firm maintains an international service dealing with every phase of ground-water development from preliminary exploration to the maintenance of installed equipment. For *Bulletin No. 100*, write LAYNE & BOWLER, INC., MEMPHIS 8, TENN.

Protects Concrete Pipe and Masonry

255 The AMERCOAT CORP. suggests the use of T-lock Amer-Plate to protect concrete pipe and structures from the damaging effects of acids, salt, Alkalis and alcohol. The new lining is applied to the inner forms of concrete structures for "locked-in" protection. When dry, it is tasteless and odorless, and contains no toxic ingredients. For additional data, address the company at 4809 FIRESTONE BLVD., SOUTH GATE, CALIF.

Spreads Rock Salt On Slippery Streets

256 An increasing number of communities are discovering that rock salt will control ice and snow-filled streets faster and more economically than abrasives. A good way to apply this rock salt is with a Scotchman spreader, made by the TARRANT MFG. CO., EAST AVE., SARATOGA SPRINGS, N. Y. Details on spreading de-icers the "Scotchman-Way," are available on request.

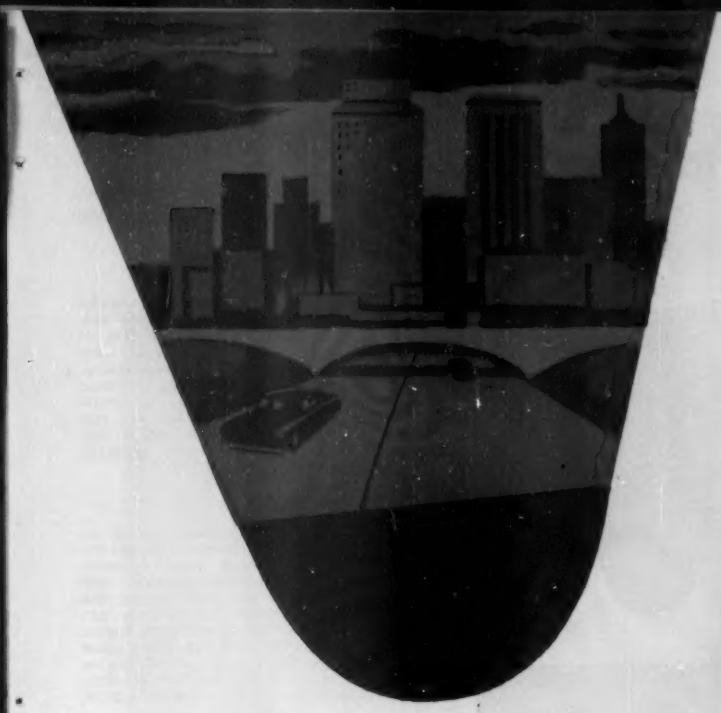
Asbestos-Cement Pipe For Water and Sewage Lines

257 Century asbestos-cement pipe won't corrode or tuberculate, and is quickly and easily installed in all types of soil. It is made with tight joints and a smooth bore for long, economical service with minimum maintenance. How Century pipe will benefit your community, is explained in literature from KEASBEY & MATTISON CO., AMBLER, PENNA.

Pipe, Valve, Leak Detectors

258 Small, accurate instruments that work quickly locating buried pipe, valves, valve boxes and leaks, are designed by THE DETECTRON CORP., DEPT. 54, 5420 VINELAND AVE., NORTH HOLLYWOOD, CALIF. Each is easy to handle and simple to operate. Four models include the "505" pipe detector, "303" box and valve detector, and "505-C" combination pipe-leak detector.

(Please turn to page 32 for more Bulletins)



Our Cities and Industries are **THIRSTY FOR WATER**

.....so is Agriculture

As more and more people move into private homes, water consumption climbs sharply. Without exception new production techniques in industry result in increased need for water . . . on our farms and ranches, the rapid growth of irrigated acreage means that more water is needed so that our food production can keep pace with population growth. America is truly thirsty!

Layne—the world's largest developers of ground water resources—knows most about these thirsts and how to satisfy them.

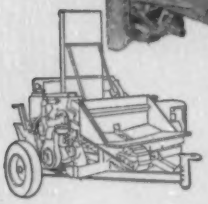
The knowledge and experience gained the world over is at your service. Your nearest Layne Associate Company can answer any question that relates to water—or write direct to:

LAYNE & BOWLER, INC.
Memphis 8, Tennessee

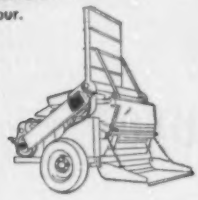
Layne Associate Companies Throughout The World

Water Wells • Vertical Turbine Pumps
Water Treatment

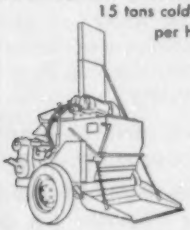
McConnaughay HTD—JR ASPHALT MIXER NEW!



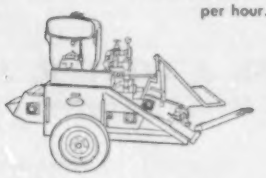
HTD-LP . . . up to 10 tons hot mix, 30 tons cold mix per hour.



HTD-500 . . . up to 7 tons hot mix, 15 tons cold mix per hour



HTD-B . . . up to 5 tons hot mix, 10 tons cold mix per hour.



JR . . . up to 60 tons cold mix per hour.

UP TO 60 TONS COLD MIX or 20 TONS HOT MIX PER HOUR

for resurfacing and patching

Especially recommended for continuous operation in the production of cold bituminous mixtures, the new *McConnaughay* HTD-JR will handle up to 60 tons per hour on location . . . assuring exceptionally fast, low-cost resurfacing.

With a 24-inch metal conveyor for proportioning the aggregate and a 55-gallon-per-minute positive displacement pump for proportioning the bituminous material, this *McConnaughay* HTD-JR can produce *one ton per minute* on the job! Thanks to a trailer-type hitch with a lever-operated mechanical jack leveling device, the unit may be coupled to aggregate trucks for mixing and depositing on the move.

In addition, the new *McConnaughay* HTD-JR is designed and equipped to produce up to 20 tons of hot mix per hour for pavement resurfacing and patching. The value of such versatility is evident; your assurance of fast, economical asphalt mixtures for practically any job, on any location, at any time of the year. Write, wire or 'phone for details and specifications today.

K. E. McCONNAUGHAY

LAFAYETTE , INDIANA

Catalogs for You

Write directly to the manufacturer or use coupon on page 25

"Keeping Count" Aids Traffic Control

259 In order to avoid traffic bottlenecks it is necessary to analyze the volume, type and directional flow of vehicles traveling through tunnels, over bridges, and through busy intersections. The Traffic Control Denominator tabulates these statistics for you quickly, accurately, and at lowest possible cost. For full details, address DEPT. AC-9, THE DENOMINATOR CO., INC., 261 BROADWAY, NEW YORK 7, N. Y.

Diesel Engines

260 Burning heavy residual fuel is no problem with a Hamilton Diesel engine. Constructed with a semi-hemispherical combustion chamber and special rotary valve and port design, the engine produces excess combustion air, large combustion volume and high turbulence. Thus, efficient burning takes place with a clean exhaust and normal engine wear. Write BALDWIN–LIMA–HAMILTON, HAMILTON DIV., HAMILTON, OHIO.

Speeds City Planning

261 All phases of city planning including traffic control, airport location, urban redevelopment, and sewer, water and pipeline location are quickly completed with the aid of aerial maps. Accurately controlled mosaics, planimetric and topographic maps will be furnished at low cost by JACK AMMANN PHOTOGRAMMETRIC ENGINEERS, INC., BROADWAY at TENTH, SAN ANTONIO 5, TEXAS. Details on request.

Improved Trenching Machine

262 You can dig a straight trench 5 feet deep and 8-, 12-, or 16 inches wide, at the rate of 14½ feet per minute, with the Parsons 88 Trenchmobile. This improved unit will travel from job-to-job at speeds up to 12 mph. In addition to trenching, it is ideal for digging curb and building footings. For a new, illustrated catalog, write the PARSONS CO., NEWTON, IOWA.

Combination Welder and Emergency Power Plant

263 An a.c. alternator, powered by a 12-hp air-cooled gasoline engine, does all your maintenance welding and, in addition, supplies 230/115-volt, 60-cycle single phase a.c. standby power to operate grinders, drillers, power tools, pumps, saws and lights. The Weldanpower machine is a 200-ampere welder, and a 4-kva continuous-duty power unit. When providing intermittent standby power, it is rated at 5 kva. Write THE LINCOLN ELECTRIC CO., CLEVELAND, OHIO.

Horizontal, Vertical and Angular Drills

264 Installing gas, electric, and water services under busy streets and sidewalks is easier when cities use electric or air motor-driven Ka-Mo drills. Ka-Mo drills bore underground without interrupting traffic. Other earth-boring equipment designed by this company may be used to place concrete pipe, drill fence holes, and drill inside casing, corrugated culvert or pipe. For further information, write KA-MO TOOLS, INC., 1845 S. 55th AVE., CICERO 50, ILL.

(See page 36 for more Bulletins)

IT TAKES A LOT OF

CONFIDENCE

(based on past experience and good judgement)

TO BUY, *in one order..*

W. G. Strichfaden, Fire Chief, Columbus, Ohio examines a portion of the shipment recently received from Bi-lateral Fire Hose Company.

Bi-Lateral! First to recognize the need for and construct fire hose with the Bi-Lateral feature.

First to change pin lug to rocker lug couplings.

First to offer FREE fire hose record cards to fire depts. They are still available.

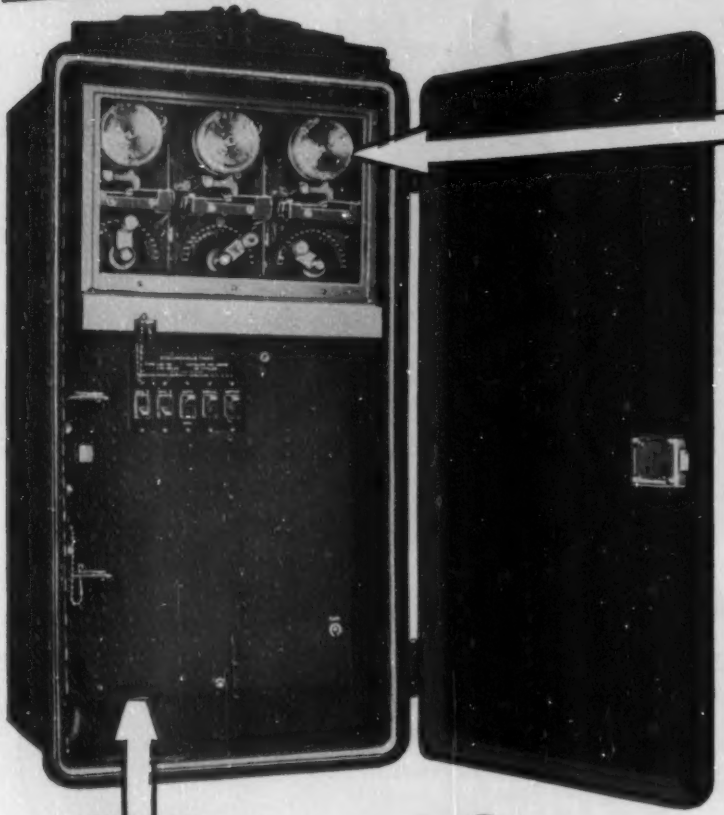
6½ miles of FIRE HOSE!

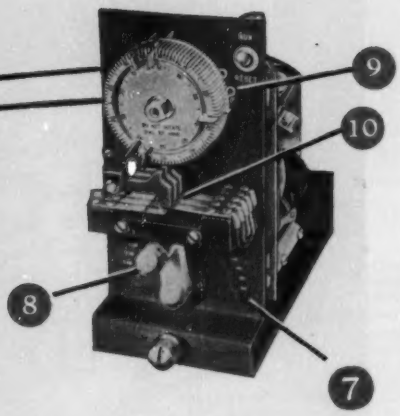
Yes! A man must be *sure* of the value to his city before he places an order for 35,000 feet of fire hose. And with *Bi-lateral*, you *know* you can *always* be sure! Bi-lateral is the hose that is manufactured *without* a *single compromise*. As hose manufacturers we know we are dealing with *lives*, not dollars — and Bi-lateral Hose is built on the premise that "Safety is Worthless Unless it is *Absolute*."

Bi-Lateral FIRE HOSE CO.

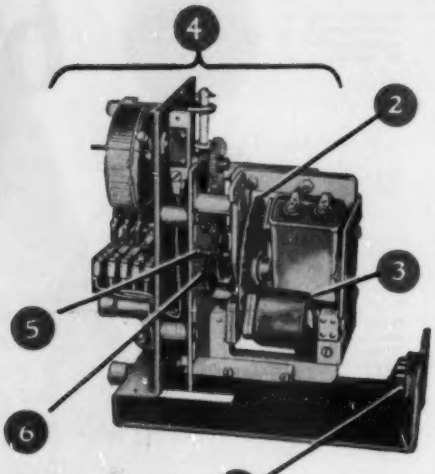
20 N. WACKER DRIVE, CHICAGO 6, ILLINOIS

You get greater flexibility with CROUSE-HINDS

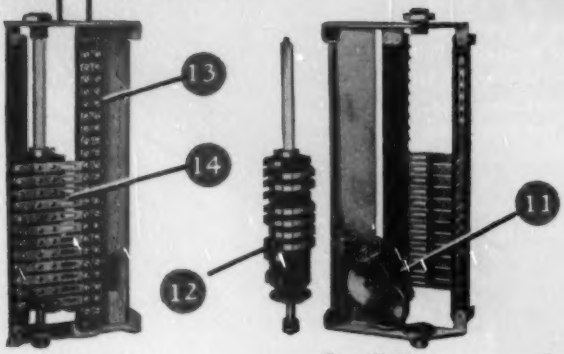




Dial-Unit
Enlarged Front View



Dial-Unit
Enlarged Side View



Cam-Unit
Right Side

Cam-Unit
Cam Shaft Removed
Left Side

CONDULETS · TRAFFIC SIGNALS

Type LS Synchronous Controller

It provides for future growth

At any location where a single-dial controller is adequate today, but where a more complex controller may be required in the future, the Crouse-Hinds Type LS Synchronous Controller makes an ideal installation. It can be supplied for non-interconnected, future-interconnected, or interconnected operation.

The Crouse-Hinds Type LS Synchronous Controller differs in its basic construction from controllers of conventional design. In the Type LS Controller, each timing-dial with its driving motor is constructed as an individual unit. All dial-units are jack-mounted to the controller assembly, and may be quickly and easily removed.

The Type LS Controller can be supplied with 1, 2, or 3 dial-units. Each dial-unit can be set for a different time-cycle, a different timing-split and a different offset. All controllers have provision for three dial-units regardless of the number of units initially purchased. Therefore, the Type LS Controller is ideal where a single-dial controller is sufficient at the time of installation, but where future needs may call for additional dials.

The Type LS Controller may be purchased with 1, 2, or 3 resets on each dial-unit. When shipped from the factory, all dial-units are wired for 3 resets. Reset 2 and reset 3 may be added in the field to single-reset dial-units by simply installing dial contacts and switch arms. It's as easy as that!

Important Features of the Dial Unit

1. Jack-mounted quickly-removable from the controller assembly.
2. Disc-type synchronous motors provide high-torque with proven reliability.
3. Electro-dynamic braking assures accurate maintenance of offset.
4. All parts readily accessible for inspection and maintenance.
5. Heavy-duty bearings used throughout.
6. Long-wearing, precision-cut reduction gearing.
7. Full-length visual scale shows time-cycle in use.
8. Latch-in gear shift assures exact engagement with dial gear.
9. Precision dial with retaining ring—timing keys are locked in position.
10. Dial-contact assembly especially designed for easy maintenance.

Important Features of the Cam Unit

11. Motor-driven for greater flexibility, smoother operation, and longer life.
12. Replaceable cam lobes assure unequalled color sequence and interval flexibility.
13. Fifteen circuits wired complete.
14. Heavy-duty color-circuit contacts rated at 10 amperes, 115 volts.

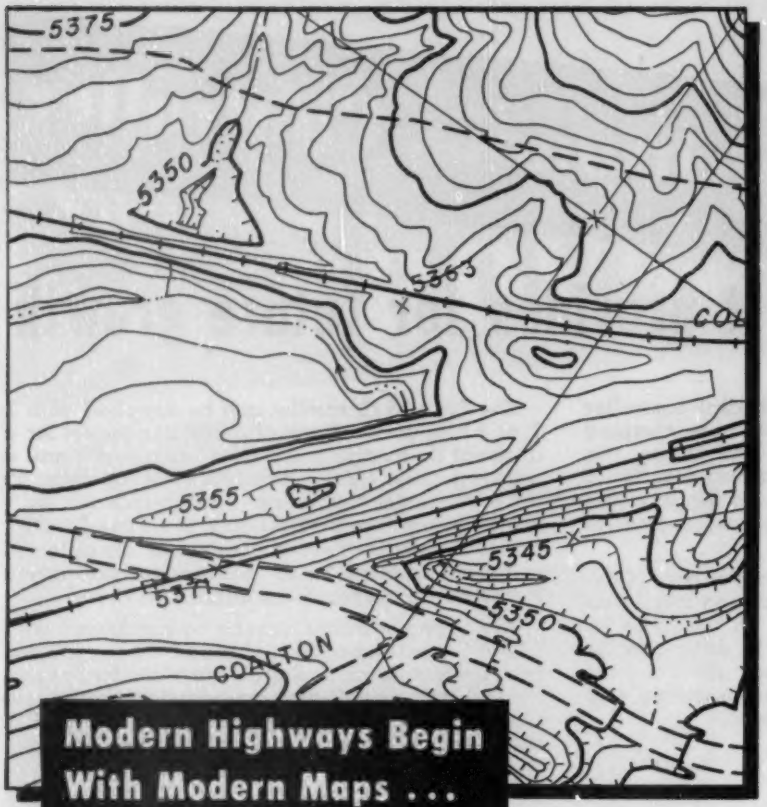
The Type LS Controller is built to Crouse-Hinds high standard of quality from the finest materials by skilled workers. It will solve many of your traffic problems.

CROUSE-HINDS COMPANY
Syracuse 1, N. Y.

OFFICES: Birmingham — Boston — Buffalo — Chicago — Cincinnati — Cleveland — Dallas — Denver — Detroit — Houston — Indianapolis — Kansas City Los Angeles — Milwaukee — Minneapolis — New Orleans — New York — Philadelphia — Pittsburgh — Portland, Ore. — San Francisco — Seattle — St. Louis — Tulsa Washington. RESIDENT REPRESENTATIVES: Albany — Atlanta — Baltimore — Charlotte — Corpus Christi — Richmond, Va. Crouse-Hinds Company of Canada, Ltd., Toronto, Ont.

A Nationwide Distribution Through Electrical Wholesalers

AIRPORT LIGHTING · FLOODLIGHTS



Modern Highways Begin With Modern Maps . . .

Post-war automobile production has put more vehicles on our highways than they were ever designed to handle. More and new types of highways are vitally needed now. Freeways, turnpikes and toll roads are being planned to shorten the distances, reduce grades and reduce travel time.

Topographic maps produced by Jack Ammann photogrammetric methods—have been produced—or are now being produced for the following:

- **Denver-Boulder Turnpike**
- **West Virginia Turnpike**
- **Kansas Turnpike**
- **Dallas-San Antonio Turnpike**
- **Dallas-Ft. Worth Turnpike**
- **Highway Departments of Vermont, Massachusetts, New York, Connecticut, Rhode Island, New Jersey, Kansas, Texas, California, Washington and Oregon.**

To meet this immediate need, highway officials and consulting engineers have turned to the services of Jack Ammann Photogrammetric Engineers. With Jack Ammann photogrammetry work can be speeded — costs can be cut—just as the highway projects listed have found.

Consult us on your mapping needs. Put our nearly a quarter-of-a-century of mapping experience to work.

Jack Ammann
PHOTOGRAMMETRIC ENGINEERS, INC
BROADWAY AT TENTH SAN ANTONIO 5, TEXAS
AIR SURVEYS—MAPS

EASTERN OFFICE: Manhasset, N. Y., 32 Hillcrest, P. O. Box 411, Phone Manhasset 7-1840
WESTERN OFFICE: (Denver) Lakewood, Colo., 995 Flower St., Phone Bel. 3-2090

Catalogs for You

Write directly to the manufacturer or use coupon on page 25

Effective Solution To Water-Supply Problems

265 If the formation of scale, problems of corrosion, or difficulties with iron or manganese occur in your municipal water supply, the Calgon Threshold Treatment may be your answer. The Threshold Treatment is fully described in literature from CALGON, INC., HAGAN BLDG., PITTSBURGH 30, PA.

Fire Hydrants for Dangerous Intersections

266 In the event of a traffic mishap, it is only the breakable barrel and valve rod coupling of this new fire hydrant that suffer damage. The rest of the hydrant remains intact, and on-the-job repairs are quick and easy. Moreover, the Quikfix B-50-B hydrant is simple to operate, eliminating packing gland maintenance and water seepage. Write DARLING VALVE & MFG. CO., WILLIAMSPORT 10, PA.

Corrects Damaged Streets

267 Properly applied with a Baughman spreader, asphalt and aggregate are the ideal answer to winter damaged streets. The company features a variety of spreaders to meet any budget requirement. Models range from a small pull-type unit to the big Spread-Mobile. Details on a full line of ice-control equipment are obtainable from the BAUGHMAN MFG. CO., 147 SHIPMAN RD., JERSEYVILLE, ILL.

Extends Life of Turbine Oil

268 Make sure power generating equipment is on the job 24 hours a day, by avoiding costly bearing failures in your turbine engines. An efficient way to do this is to keep turbine oil dry and clear with a Bowser oil conditioning system. The new conditioner extends the life of turbine oil and reduces the need for stand-by power equipment. Write BOWSER, INC., 1342 CREIGHTON AVE., FORT WAYNE 2, IND.

Undertruck Scraper Removes Packed Snow

269 Packed snow on a paved surface results in a slippery, dangerous traffic condition. An easy way to peel this snow free from the pavement, is to use an undertruck scraper made by the ROOT SPRING SCRAPER CO., 545 W. NORTH ST., KALAMAZOO, MICH. The Root F-33 scraper is designed with a 15½-inch curved moldboard, and powerful hydraulic blade pressure. It is fully described in *Bulletin* 333.

Engines, Pumps and Compressors

270 To provide your municipal power plant with really high thermal efficiencies, install Cooper-Bessemer gas-diesel engines, designed for low-cost operation and minimum maintenance. Other units offered by this company include diesel engines, gas engines, engine- and motor-driven compressors, and high-pressure liquid pumps. Write the COOPER-BESSEMER CO., MOUNT VERNON, OHIO.

(See page 38 for more Bulletins)

AN INTEGRATED PRODUCER IS A SUPPLIER YOU CAN RELY UPON

United States Pipe and Foundry Company is a wholly integrated producer of cast iron pressure pipe—from our mines and blast furnaces to our strategically located pipe plants.

This should be of major interest to a pipe buyer since it means:
(1) complete independence of action in supplying your needs as we produce our own raw materials,
(2) greater assurance of continuity of service at all times, and
(3) undivided control of quality at every step in pipe production from the ground up.

In addition to being able to control the quality of pipe-making raw materials at their sources, our Quality Control of pipe production gives further assurance to customers that the quality level of U. S. Cast Iron Pipe is in excess of standard specifications. Our pipe is produced to *our own* quality control specifications, more exacting than the established specifications under which cast iron pipe is normally purchased.

U.S.
cast iron
PIPE
FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE

Ore and Coal Mines

Coke Ovens

Blast Furnaces

Pipe Plants

U. S. PIPE & FOUNDRY COMPANY
GENERAL OFFICES: BIRMINGHAM 2, ALABAMA

A wholly integrated producer . . . from mines and blast furnaces to finished pipe.

FOR ACCURATE REMOTE MEASUREMENT

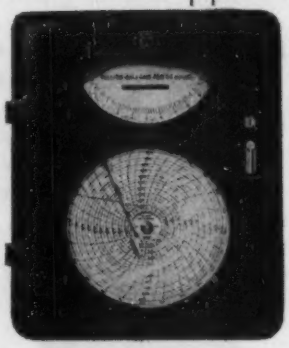
of Flow, Liquid Level, Pressure

NEW! SIMPLEX ORTHOFLOW®

• Now you can transmit data accurately over great distances for instant reference at central or control points.

TRANSMITTER – Compact new electric unit actuates both in-plant and remote meters . . . unaffected by normal variations in voltage, temperature. Simple, dependable, rugged. Accuracy of ±2% at any point over wide flow ranges.

RECEIVER – Time-proven Simplex H Meter. Precisely duplicates transmitted data . . . automatically resets to correct data after power interruptions. Indicates, records, totalizes. Easy-to-read flow scale and chart.



SIMPLEX VALVE & METER COMPANY
6789 Upland St., Philadelphia 42, Pa.

Write for Brochure

SIMPLEX® VALVE AND METER COMPANY

Catalogs for You

Write directly to the manufacturer or use coupon on page 25

Good Water Pipe

271 Why prestressed concrete pressure pipe is preferred for today's high capacity water lines is explained in *The Story of Concrete Pressure Pipe*, an illustrated booklet from PRICE BROS. CO., 1817 E. MONUMENT AVE., DAYTON 1, OHIO. The booklet gives the history of concrete in water lines, tells how prestressing works, and shows the various types of concrete pipe for water transmission and distribution lines, subaqueous intakes and outfalls, and sewage force mains.

Reflectorized Traffic Signs Are Easier to Read

272 Screened, sprayed or brushed on all of your traffic and street-name signs, Grotelite reflective sheeting provides 24-hour visibility, protecting motorists and pedestrians alike. The smooth, self-cleaning surface is economical to apply and maintain. Cities can purchase the reflective sheeting alone, or buy the completed sign. For detailed information on Grotelite reflective sheeting, write THE GROTE MFG. CO., INC., GROTE SQ., BELLEVUE, KY.

Prevents Corrosion In Water Lines

273 This effective primer combines with an enamel lining to protect water lines and water-works equipment from the damaging effects of corrosion and tuberculation. The primer is quickly applied to metal surfaces and dries in about 12 hours. An external enamel coating is then applied which, in the case of water lines, prevents line capacity losses and maintains the original high coefficient of the flow. Write the BARRETT DIV., ALLIED CHEMICAL & DYE CORP., 40 RECTOR ST., NEW YORK 6, N. Y.

New Strapping Kit For Maintenance Men

274 To expedite pipe insulation, conduit fastening, cable splicing and stringing, and sign fastening jobs, furnish your city's maintenance crew with these portable steel strapping kits. Each kit weighs 19 pounds and includes a No. 100 Steelbinder tool and a No. 502 strap cutter. The case holds 200-foot packaged coils of strapping, and a removable tray carries Steelbinder Seals and other accessories. The No. 157 Kit is described in literature from A. J. GERRARD & CO., 1952 N. HAWTHORNE AVE., MELROSE PARK (Chicago suburb), ILL.

Automatic Operation in Water and Sewage Plants

275 One way to guarantee dependable, automatic operation in water and sewage plants, pumping stations and other municipal installations, is to use Adlake mercury relays designed with time-delay characteristics that are fixed and non-adjustable. These characteristics are immune to normal line voltage fluctuations and ambient temperatures from –38.8° to 200°. Get full information from THE ADAMS & WESTLAKE CO., 1176 N. MICHIGAN, ELKHART, IND.

(See pg. 202 for more Bulletins)

THE CLAMP WITH GUTS!

Designed for rugged use, the Emergency Pipe Clamp is a clamp of almost unlimited strength. You might say it looks fairly simple. Yet fifty years of experience have gone into its design . . . the heavy ribbing to "take" the bolt-pull, the skillful shaping of the bolt lugs for terrific strength and a free wrench swing. The full length, massive hinge which no strain can loosen! The over-thickness of metal throughout to make child's play of any pressure! The glove-like fit . . . result of shaping each clamp over an accurate mandrel, pulling it down with a 12,000 pound air vice and sledging to complete snugness.

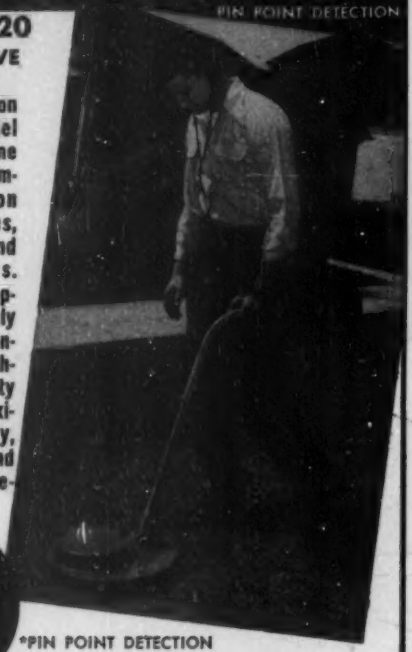
When you put on the Emergency Pipe Clamp, it is there to stay. Tens of thousands of them are still in place after 20, 30, 40 years' service. To end a leak problem once and for all use an Emergency Pipe Clamp.

Write for Catalog GW
M. B. SKINNER CO., South Bend 21, Ind.

SKINNER-SEAL EMERGENCY PIPE CLAMP

with GOLDAK EQUIPMENT
you KNOW you get PPD*

PIN POINT DETECTION



MODEL 620
BOX & VALVE LOCATOR

Pin Point Detection of Goldak's Model 620, saves you time and money, with immediate location of Buffalo Boxes, Valves, Covers and Buried Metals.

Untiring operation, weighs only 8 lbs. Sturdily constructed, all-weather use. High quality parts assures maximum sensitivity, low operating and nominal replacement costs.

you get PPD* with Goldak Locators

*PIN POINT DETECTION

write for FREE literature and name of nearest dealer

The name GOLDAK, on electronic instruments, eliminates guesswork . . . your assurance of Pin Point Detection at all times, in any kind of weather. Throughout the world, with companies who need instruments that are accurate and durable, first choice is GOLDAK.

MODEL L46
SENIOR
LEAK DETECTOR

Detect costly leaks in water and low viscosity fuel lines, in their exact position. Completely portable, simple to operate. Latest electronic improvements and high quality parts, assures unequalled performance. Save time and labor, eliminate costly leakage with Goldak Model L46.

you get PPD* with Goldak Locators

*PIN POINT DETECTION

The GOLDAK Company
Leading Makers of PIPE LOCATORS
Since 1933

1544 W. GLENOAKS BLVD.
GLENDALE 1, CALIF.

UNITED UNANIMOUS CHOICE UNITED

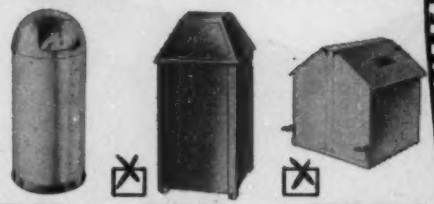
Of Municipalities
For Every Sanitary Need

UNITED

WASTE RECEPTACLES

By overwhelming choice, UNITED gets the vote of forward-looking communities because of:

long range economy • sturdy construction • durable performance



ROUND TOP RECEPTACLES
Wherever modern decor demands a functional and attractive receptacle the new Round Top is TOPS.

SWING TOP RECEPTACLES
For thoroughfares, public buildings, parks, schools—wherever sturdy, safe, dependable efficiency is essential.

SANITARY NAPKIN DISPOSAL RECEPTACLES
Eliminate clogged drains. Foot pedal operated. Galvanized steel inner container is easily removed for emptying. Practically air-tight when closed.

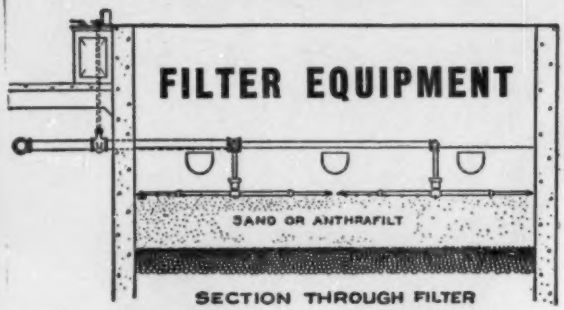
Write for Catalog

UNITED METAL BOX CO. INC.
BROOKLYN 15, N. Y.
West Coast Distributor: SHORELINE METALS

UNITED UNITED

PALMER

FILTER EQUIPMENT



SECTION THROUGH FILTER

Filter Bed Agitator Advantages

- Requires an average of 40% less wash water
- Eliminates mud balls
- Prevents cracking and shrinking of the beds
- Produces "new" sand after short period of normal operation
- Enables you to increase filter runs up to 50%

Anthrafilt Advantages

- Doubles the length of filter runs attainable with sand and quartz media
- Requires one-half as much wash water
- Filters are out of service less because of the shorter wash cycle
- Coating, caking or balling with mud, lime, iron or manganese reduced to the minimum

Write for Circular

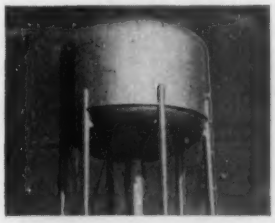
PALMER FILTER EQUIPMENT CO.
P. O. BOX 1655, ERIE, PA.

Beautify as you protect city equipment, water and sewage works, fences, stop signs, fire hydrants, street lights, tanks, trucks, etc.!

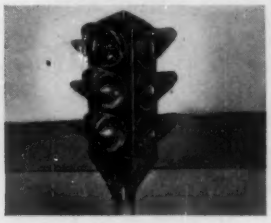
RUST-OLEUM saves time, money, and metal!—and beautifies as it protects! Brush RUST-OLEUM 769 Damp-Proof Red Primer right over the remaining rust after scraping and wirebrushing to remove rust scale and loose rust! Easy as that to save even badly rusted metal! For colorful beauty, use any of RUST-OLEUM's distinctive finish coatings in ALUMINUM, RED, WHITE, GREEN, GRAY, BLUE, ORANGE, BLACK, and many others. RUST-OLEUM resists rain, snow, sun, fumes, heat, salt water, salt air, weathering, etc. to give you colorful, lasting protection. See your local classified telephone directory under Rust Preventives or Paints for nearest source of supply, or mail coupon today.

STOP RUST! with RUST-OLEUM®

Available in Aluminum, Black, White, Red, Green, Gray, Blue, Orange and many others.



Water tanks, fuel tanks—all need RUST-OLEUM decorative beauty and lasting protection.



Stop lights, stop signs, and fire hydrants are another way to utilize RUST-OLEUM protection.

RUST-OLEUM matches such original manufacturer's colors as Harvester, Caterpillar, and many others for your tractors, trucks, etc.

Use bright RUST-OLEUM colors on your tanks, pumps, pipes, and machinery indoors and out.

Street lights need RUST-OLEUM's year 'round resistance to salt water, salt air, rain, snow, sun, fumes, heat and weathering.

You'll find RUST-OLEUM at work in water and sewage plants all over the country—giving decorative beauty and lasting protection.

ATTACH TO YOUR LETTERHEAD AND MAIL TO:

RUST-OLEUM CORPORATION, 2512 Oakton Street, Evanston, Illinois

- ☐ Please Send Me A FREE TEST SAMPLE To Apply Directly Over Sound Rusted Surfaces.
- ☐ Complete Literature With Color Charts.
- ☐ Have A Qualified Representative Call.
- ☐ Nearest Source of Supply.

NOW

a new low-cost WINDROW LOADER

NOW—a new low-cost answer to windrow loading.

NOW—a Windrow Loader with a realistic capacity. Keeps ahead of all the trucks normally available.

NOW—a Windrow Loader with fast, easy maneuverability. No need to travel to an intersection to turn around. Turning radius: 8′-6″.

NOW—a Windrow Loader for year-round use. Handles snow in addition to other windrowed material.

Tractor mounted. New claw-action feeder with automatic release. Loads earth, etc., at 4 cu. yd. per min. Snow at 7 cu. yd. per min. Ten-foot discharge height. Eight-foot boom overhang. Self propelled at 10 m.p.h.

NOW—is the time to write for full information.

54-41-WL

Barber-Greene

AURORA, ILLINOIS, U.S.A.

BG

WRITE for INFORMATION

descriptive literature . . . sound movies

cost studies . . . nearby job inspection . . . plant layouts

OVER 550,000 WASTE KING *PULVERATOR* GARBAGE DISPOSERS ARE IN DAILY USE THROUGHOUT AMERICA

Chosen on the basis of individual preference!

This is the basis of the Community-wide Garbage Grinder Plan for cities suggested by WASTE KING *Pulverator*, America's Finest Garbage Disposer.

WHAT THE PLAN IS—

The Garbage Grinder Plan is based on the American tradition of free enterprise and the right of the individual to choose the product he wants by type, brand, model and features. The Public Official sets the plan in motion by: 1) adopting ordinances to permit installation of garbage grinders, 2) preparing ordinances requiring installation of garbage grinders in homes and food service establishments for community sanitation, 3) permitting free choice of grinders.

WHAT THE PLAN DOES—

- Eliminates existing, inadequate and costly unsanitary garbage collection and disposal.
- Provides a modern sanitary method of eliminating garbage at the "point of origin" by community-wide installation of garbage grinders.
- Sets a higher standard of community and individual health and sanitation.
- Lowers taxes. Improves community beauty . . . no garbage cans, no garbage trucks.

All new WASTE KING Pulverator with Super "Hush-Cushions!" Quietest, fastest operating.

Write for your free copy of the *"Recommended Standard Garbage Grinder Ordinance."*
GIVEN MFG. CO., Dept. AC-9
3450 Wilshire Blvd.,
Los Angeles 5, California

Waste King
PULVERATOR
A PRODUCT BY GIVEN MFG. CO., LOS ANGELES, CALIFORNIA

America's largest producer of garbage disposers for the Home and Food-Service Industry!

● Something has been done about

This new revolutionary method for handling huge quantities of rubbish on long hauls offers tremendous savings.

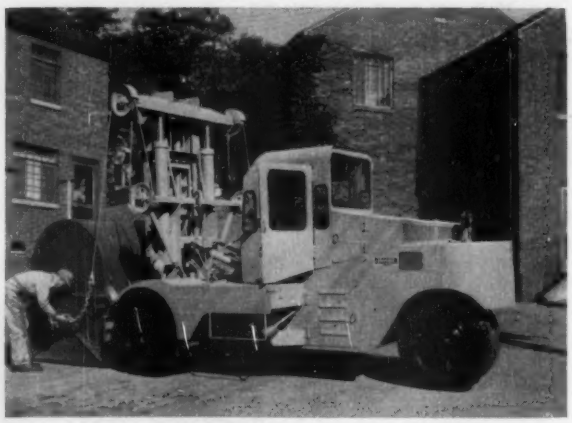
With this announcement we introduce the new Dempster-Dumpster GRD 304, designed to handle large Dempster-Dumpster Containers in combination with a big capacity trailer. It may be the solution to your problem of handling trash and rubbish over the long haul from points of accumulation to the dump. Here is how it works:

1. You replace inadequate, unsanitary and costly conventional trash cans, barrels, etc. in heavy rubbish production districts such as housing areas with big Dempster-Dumpster Detachable Containers. These containers range up to several times the capacity of the average dump truck body. (In one large housing area 18 Dempster-Dumpster Containers are now doing the job that formerly required 440 conventional cans.) Containers have self-latching doors opened by the tenants for depositing refuse, then close, sealing up the trash . . . eliminating unsanitary conditions, fire hazards, rats and scattered trash by winds and scavengers.

2. On schedule, this fast-moving new Dempster-Dumpster and a 40 to 50 cu. yd. trailer truck, with or without compaction, serve the containers. With its hydraulic tricycle steering, fingertip control and short overall length, this Dempster-Dumpster features quick and easy maneuverability in handling the big containers, one after another. Only two men—the Dempster-Dumpster operator and the trailer-truck driver—are required for the entire operation. The Dempster-Dumpster picks up each container, moves it to trailer and dumps the waste materials. The trash and rubbish from one to several housing areas can be loaded into one big trailer.

This new system offers a great opportunity for low cost, sanitary rubbish collection. It enables you to eliminate trucks standing idle, eliminate loading crews and costly re-handling of trash and rubbish. Write us for complete information today! Manufactured exclusively by Dempster Brothers, Inc.

The photo at right shows the GRD 304 operator attaching lifting chains to a loaded 8 cu. yd. Apartment Type Container in a large housing area. The container is then hoisted hydraulically to carrying position, as shown above. Note the trailer near-by in background. The load is then placed in high position for dumping rubbish in trailer as shown in large photo at right. Several containers will be serviced in this same manner before trailer proceeds to another convenient loading point.



DEMPSTER DUMPSTER SYSTEM

DEMPSTER BROTHERS

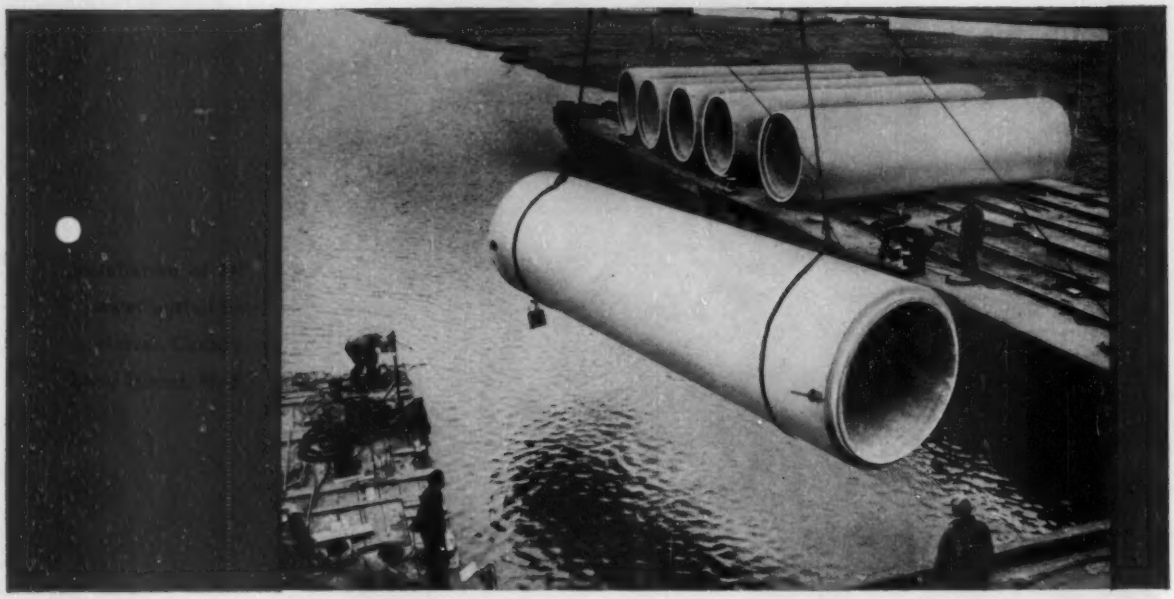
the Long Hauls of Trash and Rubbish

● Meet Us At The Shows

American Public Works Congress, Atlantic City, September 19-22. Booths 32-33-34, Municipal Auditorium. Hotel Claridge Headquarters Suite 608-9. NAHO Conference in Philadelphia October 11-14.

894 DEMPSTER BUILDING, KNOXVILLE 17, TENNESSEE

LOCK JOINT for efficient and easy subaqueous installation



Ideal for water intakes, sewer outfalls and river crossings, Lock Joint Reinforced Concrete Subaqueous Pipe provides the simplest, most effective method of joining pipe under water. The self-centering Rubber and Steel joint can be drawn together accurately and easily by merely taking up the nuts on two draw bolts of a special joint harness. Once the joint has been pulled "home," the compressed rubber gasket seals a permanent, watertight, flexible joint which requires no further bolting, caulking or welding.

Added advantages of Lock Joint pipe are the absence of tuberculation or corrosion, long life, permanent high carrying capacity and minimum maintenance costs. If your pressure pipe project requires pipe 16" in diameter or larger, you owe it to yourself to investigate the unexcelled characteristics offered by Lock Joint.

One of the leading producers of sewer and culvert pipe, Lock Joint Pipe Co. also manufactures pressure pipe for:

- TRANSMISSION MAINS
- INDUSTRIAL INSTALLATIONS (Supply, circulating and cooling systems)
- DISTRIBUTION MAINS
- WATER WORKS OPERATIONS (Pumping and treatment plant piping)
- SEWER WORKS OPERATIONS (Force mains and treatment plant piping)

LOCK JOINT PIPE COMPANY

Established 1905

P. O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS: Wharton, N. J., Turner, Kan., Detroit, Mich., Columbia, S. C.

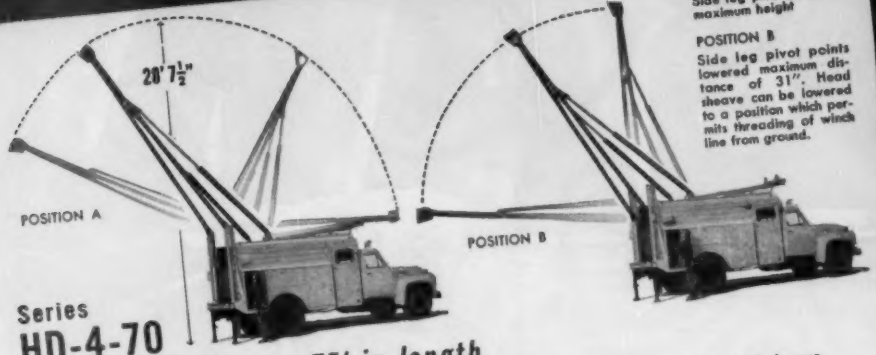
SEWER & CULVERT PIPE PLANTS:

Casper, Wyo. • Cheyenne, Wyo. • Denver, Col. • Kansas City, Mo. • Kennett Square, Pa. Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. • Wichita, Kan. • Kenilworth, N. J. Hartford, Conn. • North Haven, Conn. • Tucumcari, N. Mex. • Oklahoma City, Okla. • Tulsa, Okla. • Beloit, Wis. • Hato Rey, P. R. • Ponce, P. R. • Caracas, Venezuela • Wholly Owned Subsidiary, Great Lakes Pipe Co., Plants: Buffalo, N. Y. • W. Henrietta, N. Y.

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

- POWERS *American*

"Pole-Master" Fully Powered HYDRAULIC DERRICKS



POSITION A
Side leg pivot points at maximum height

POSITION B
Side leg pivot points lowered maximum distance of 31". Head sheave can be lowered to a position which permits threading of winch line from ground.

Series HD-4-70

Handles poles up to 75' in length

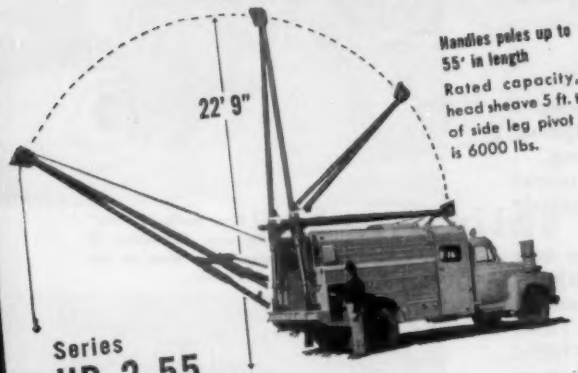
This is a heavy-duty derrick which can be operated by one man. Every movement—from carrying position to any point within the operating range—is hydraulically actuated. Shifting of control levers is the only manual requirement.

The derrick can be spotted in any position selected by the operator . . . and can be moved under load.

What's more, the position of the head sheave can be raised or lowered a distance of 31" . . . hydraulically . . . without changing angle of elevation.

With head sheave fully extended, 5 ft. to rear of side leg pivot points, the derrick has a capacity of 9000 lbs.

Complete details are given in Powers-American Bulletin No. 407. A copy, with quotation, is yours for the asking.



Handles poles up to 55' in length
Rated capacity, with head sheave 5 ft. to rear of side leg pivot points, is 6000 lbs.

LIVE BOOM—CAN BE OPERATED UNDER LOAD

HYDRAULIC HEIGHT ADJUSTMENT

CAN BE USED WITH SINGLE DRUM WINCH

NO BODY LOAD AREA OBSTRUCTION—NO DANGEROUS EXPOSED MECHANISM

Series HD-2-55

Operation is completely hydraulic. Insertion and removal of locking pins, and shifting of control is the only manual requirement.

The derrick can be spotted in an unlimited number of positions, and moved while under load. It will lift loads to body cargo area.

Descriptive Bulletin No. 405R, with quotation, will be sent on request.

SERIES HD-2-40 Same as above, with 20' 10" ground-to-head sheave height.

POWERS-AMERICAN DIVISION

McCABE-POWERS AUTO BODY COMPANY

5900 NO. BROADWAY • ST. LOUIS 15, MO.
428 LATHAM SQ. BLDG. • OAKLAND 12, CALIF.

Shown here is a Baker Sectional Trip Plow. Reversible trip action lets the blade ride over obstacles . . . keeps the blade right down on the pavement.

There's a Baker Snow Plow for all sizes, all types of trucks

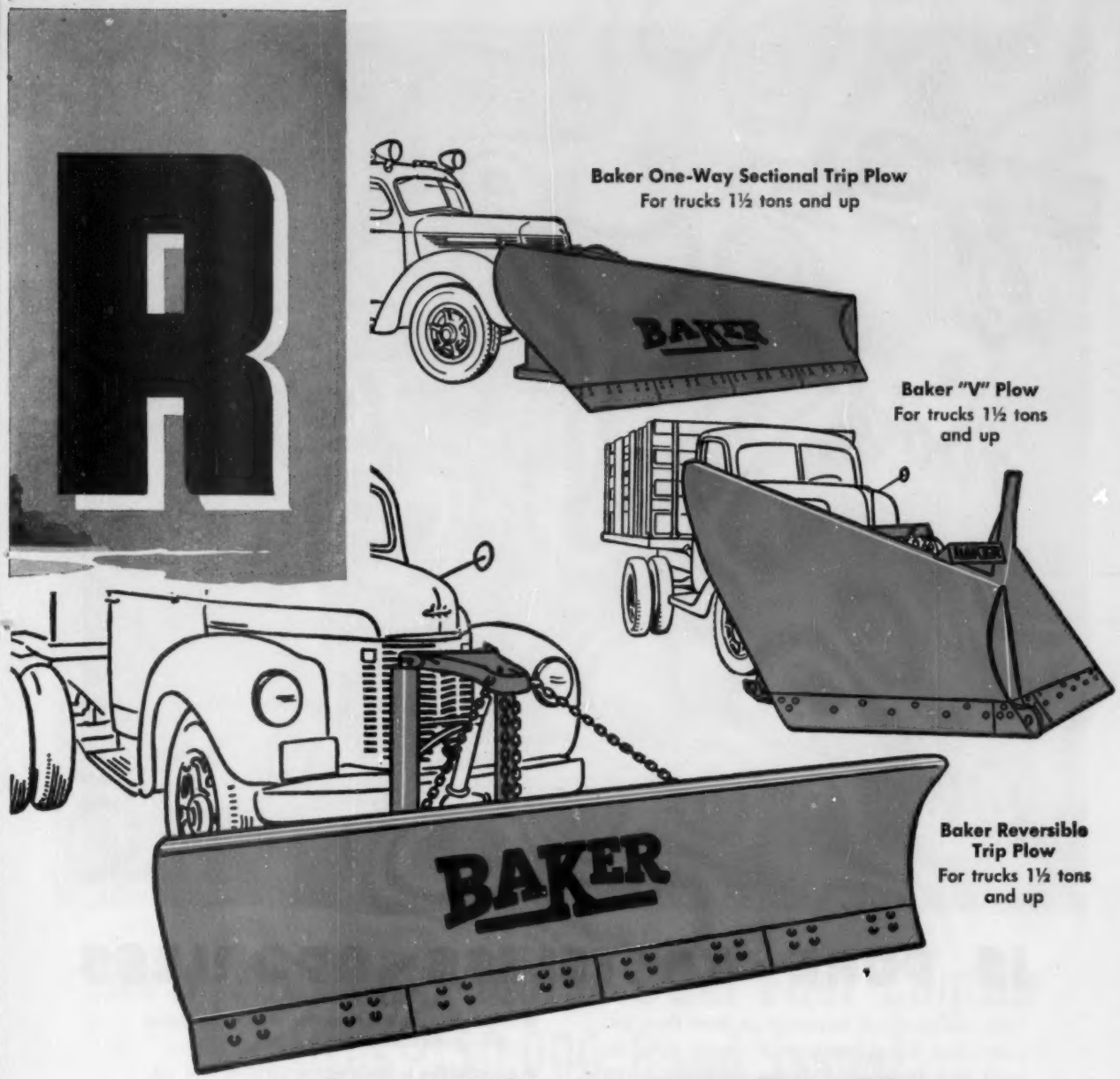
When wintery skies dump their snow . . . will you be ready to move it . . . *fast?* Roads must be kept open . . . traffic must flow. Snow fighting equipment *must be on hand* to keep factories, schools, churches going . . . mail must move, food deliveries can't be stopped. Every winter renews this problem . . . and periodically Mother Nature unloosens a particularly bad one.

An adequate complement of snow-moving equipment is the only answer . . . and it is sound planning to have stand-by units for emergency mounting when the need becomes critical. It's a long-range investment that pays big dividends when the "snow really falls." Baker Snow Plows are the *advanced-designed* plows that are ready to clear roads—faster. They offer "Roll-Action" Blades that lift the snow with less engine effort. Baker Blades give faster, cleaner, operation right down on the pavement. Baker Snow Plows are rugged . . . they've been tested to perform under the most adverse conditions.

Look back . . . and remember how a bad snow "tied up" roads, stopping all traffic. *Look ahead* . . . and *plan* to have adequate snow removal equipment to handle any emergency. Then, *look to Baker* . . . to supply the snow-plow designed to do the job . . . more efficiently. Baker offers the *complete line* . . . for all sizes and types of trucks—with immediate delivery. Write today to The Baker Manufacturing Company, Springfield, Illinois for the Baker Snow Plow Dealer nearest you, and ask for a copy of Bulletin No. 1003.

Here is a Baker Sectional Plow really "rolling" a load of snow off the highway. Roll-Action of the Baker Snow Plow means less wear on the engine . . . the load moves easier.

A Baker "V" Plow mounted on a truck opens the road. Clearing a path quickly . . . easily, as the snow "boils high" onto the shoulders leaving a clean highway so that traffic can move . . . without danger.



Baker One-Way Sectional Trip Plow
For trucks 1½ tons and up

Baker "V" Plow
For trucks 1½ tons and up

Baker Reversible Trip Plow
For trucks 1½ tons and up

Baker Builds the Complete Line

SPECIFICATIONS

REVERSIBLE TRIP PLOWS

Models	Size Trucks
358-358A	1½ to 2½ tons
359-359A	2½ to 3 tons
353-353A	Medium
354-354A	Heavy-Duty

ONE-WAY SECTIONAL TRIP PLOWS

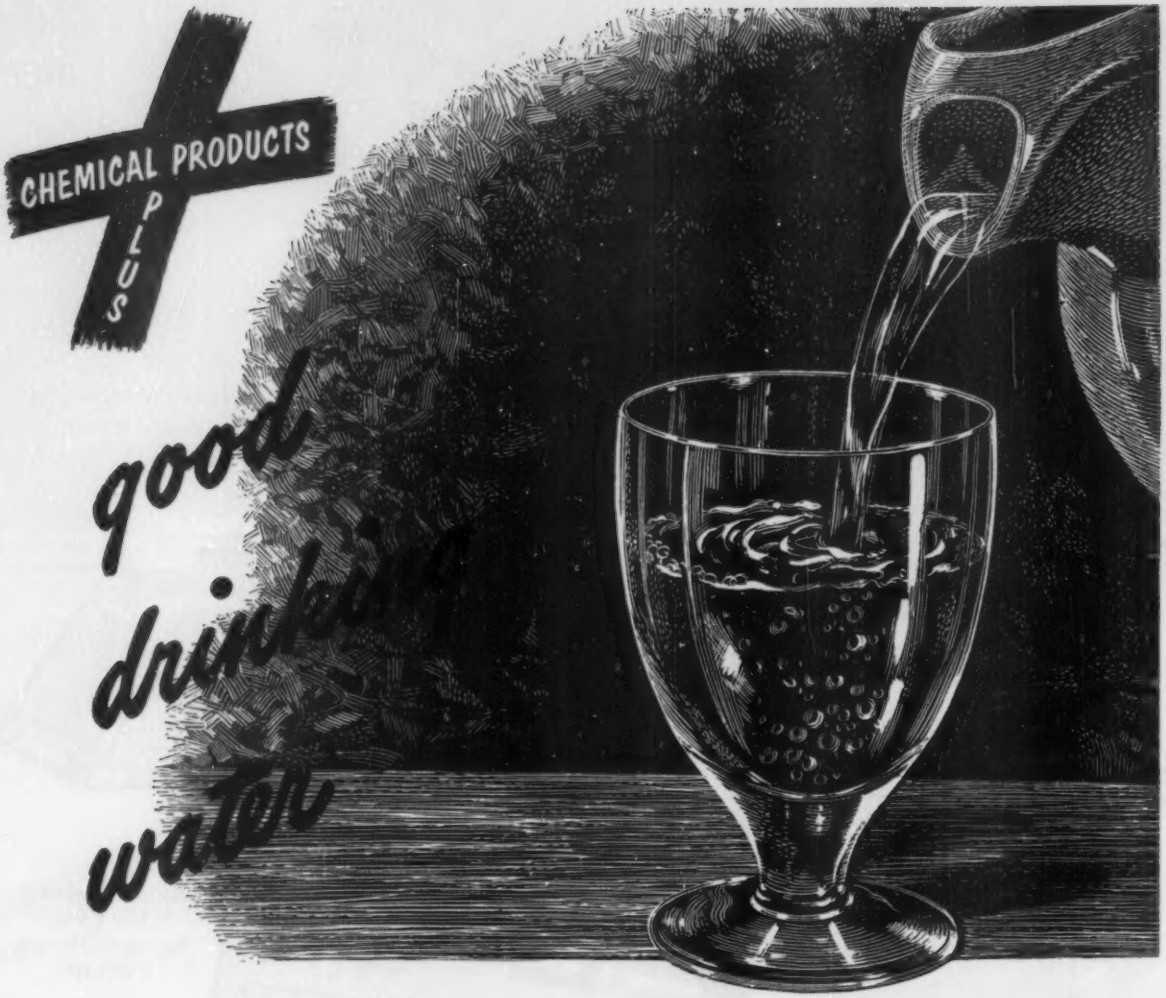
Models	Size Trucks
271-271A	1½ to 2½ tons
272-272A	2½ to 3 tons
273-273A	3½ to 5 tons
275-275A	5 tons and up

"V" PLOWS

Models	Size Trucks
261	1½ to 2½ tons
262	2½ to 3½ tons
263	3½ to 5 tons
265	5 tons and up

Frames provided in both Underframe and Front-Push models; Hydraulic and Power Lift.

THE BAKER MANUFACTURING COMPANY
SPRINGFIELD, ILLINOIS



IS PURE • TASTELESS • ODORLESS

Your community is interested in *more* than just pure water. Local sanitation engineers are often faced with problems of disagreeable tastes and odors which cannot be controlled by regular water treatment methods.

Today, over 150 communities are using the Mathieson Chlorine Dioxide process to eliminate unpleasant tastes and odors. Chlorine dioxide is not only a dependable disinfectant, but its powerful oxidizing action...

- destroys tastes and odors from algae and other organic matter
- changes manganous salts to insoluble manganic compounds
- oxidizes objectionable compounds formed during regular chlorination
- helps maintain an active chlorine residual throughout distribution system
- is effective in even highly alkaline and softened water

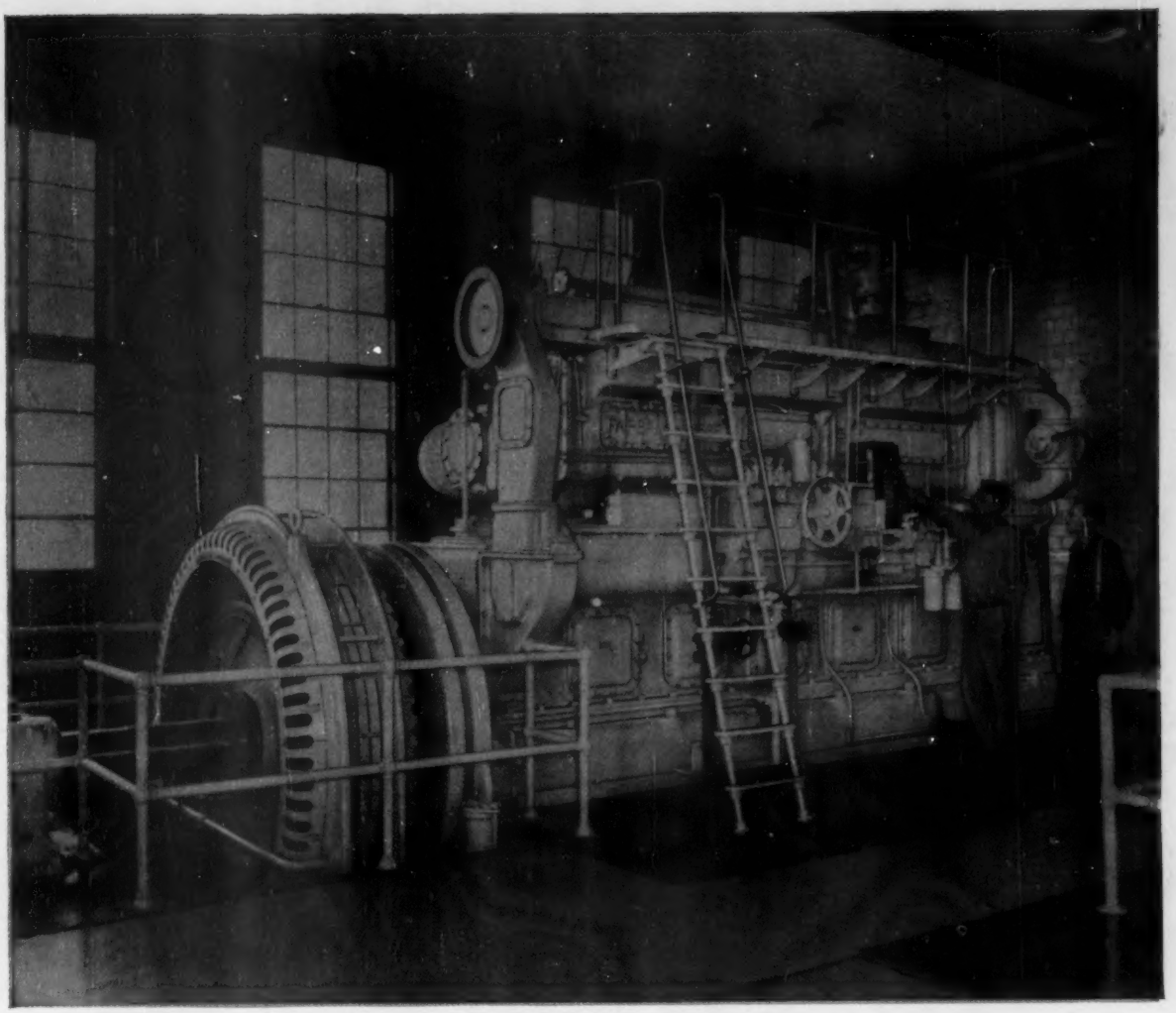
Treatment of potable water with Mathieson Chlorine Dioxide is neither complicated nor expensive and it requires only the simplest of equipment. And Mathieson's comprehensive technical service is a PRODUCT-PLUS that assures you of a system best suited to your needs. Get complete information from your Mathieson representative or write today.

MATHIESON

OLIN MATHIESON CHEMICAL CORPORATION
INDUSTRIAL CHEMICALS DIVISION
Baltimore 3, Maryland

2296

caustic soda • soda ash • chlorine • sulphur • sulphuric acid • bicarbonate of soda • ammonia • sodium nitrate • nitric acid • hydrazine products
sodium methylate • sodium chlorite • alum • hypochlorite products • dry ice and carbonic gas • ethylene glycols and oxide • methanol



New Fairbanks-Morse Dual Fuel Engine Retires $150,000 Bond Issue!

When put in service in June, 1950, the 1000-hp. Fairbanks-Morse Model 33FD16 quickly established itself as the most economical engine in the Forest City, Iowa, plant. In a 29-month period, 7,336,260 Kw-h. were generated, at an average fuel cost of 3.89 mills per Kw-h. . . . just half the plant's previous cost. To date the engine has not required a single repair or part replacement.

In producing the majority of Forest City's power, the F-M dual fuel engine's dramatic fuel and lube oil economies and exceptionally low maintenance costs paved the way to a 27 per cent reduction of total plant production costs. As a result of these savings, the plant was able to pay off a revenue bond issue of $150,000 in just 3½ years. Fairbanks, Morse & Co., Chicago 5, Illinois.

FAIRBANKS-MORSE

a name worth remembering when you want the best

DIESEL AND DUAL FUEL ENGINES • DIESEL LOCOMOTIVES • RAIL CARS • ELECTRICAL MACHINERY • PUMPS • SCALES • HOME WATER SERVICE EQUIPMENT
FARM MACHINERY • MAGNETOS

Good Roads makes "Champions".

SNOW PLOWS

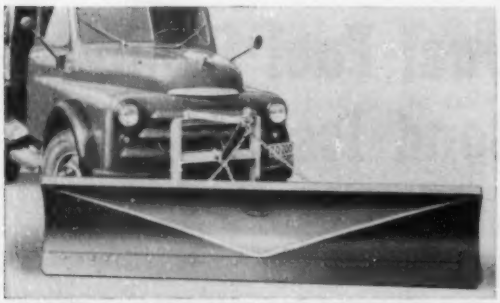
- *For fast removal and control of falling snow on city streets*
- *For removal of heaviest drifted snow on highways*

You'll find the most economical and efficient equipment to combat nature's unpredictable elements in the "Champion Line".

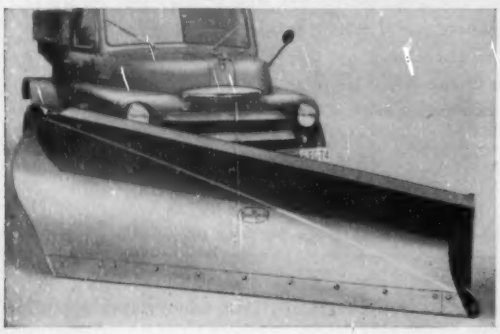
V-Plow designed for tough going in deep snow, with hydraulically operated wing illustrated at left is ideal for heavier trucks. Left or right hand wings available. V-Plows are made in a wide variety of sizes for small tractors and jeeps, up to sizes for 10-ton trucks.

The Good Roads Machinery Corporation "Champion Line" of snow removal and control equipment is the most complete line in its field. "Job-Designed" from over 75 years of actual experience in the manufacture of road machinery, Good Roads has the equipment to meet your specific needs and to solve your snow and ice control problems. For complete detailed information on snow and ice control, as well as other highway maintenance equipment, write to

THE GOOD ROADS MACHINERY CORPORATION
MINERVA, OHIO



Reversible Blade Plow. The safety and ease of operation in small and congested areas of this type plow make it a favorite for municipal, industrial, airport and private use on medium and smaller trucks. Reversible blade can be adjusted to 5 different plowing angles, straight-push and left or right of truck. Made in a range of sizes covering jeeps to 10-ton trucks and equipped with automatic "Safety Blade Tip". Tapered blade models available.



One Way Plow. The speed, capacity and safety of this type plow make it ideal for long stretches of open highway. Three plowing angles are provided and vertical pitch is adjustable for varying snow conditions. It has the flexibility to conform to highway contours. Available in tractor to 10-ton truck sizes.

..for the Battle of Ice and Snow!

SPREADERS for ICE and SLEET CONTROL

The Jet Line of spreaders for salt, sand, cinders and calcium chloride is designed for fast action, maneuverability and wide coverage, important to fast control of icing conditions. Also widely used for seal-coating and aggregate spreading.

FIVE STANDARD MODELS,
in various sizes:

JET ACE—Gasoline Motor Driven, Twin Spinner, Electric Cab Controls.

JET KING—Gasoline Motor Driven, Twin Spinner, Cable Cab Controls.

JET QUEEN—Gasoline Motor Driven, Single Spinner, Cable Cab Controls.

JET JACK—Power Take-Off Driven, Single Spinner, Cable Cab Controls.

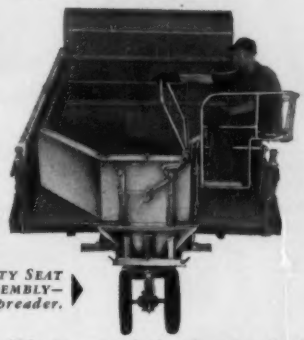
JET HYDRAULIC—Full Hydraulic operation on conveyor and spinners, cab controlled, powered from power take-off through Hydraulic pump.

Adjustments can be made on all Jet Spreaders for various applications and materials to produce the desired width and thickness of spread. Types are available for special applications, for mounting on dump bodies, stake bodies, or special truck chassis.

4-U TOWED SPREADERS

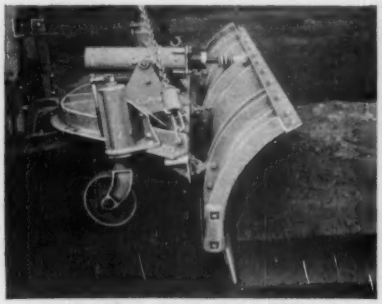
The popular low-cost 4-U spreader illustrated at left can fit any truck dump body and attaches in only fifteen seconds. It is made in five wheel and tire sizes for various spreading ranges. Spread is adjustable up to 270° with variable width control. Available for use with 4-U spreader is the patented Good Roads SAFETY SEAT AND TAILGATE ASSEMBLY shown on the right.

GOOD ROADS 4-U SPREADER —available in 5 wheel sizes.

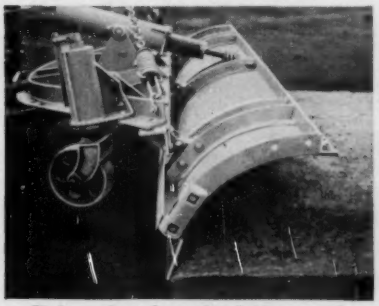


GOOD ROADS SAFETY SEAT and TAILGATE ASSEMBLY— in use with 4-U Spreader.

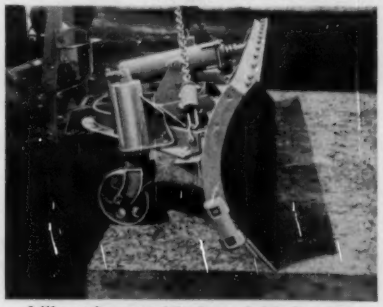
GOOD ROADS SAFETY BLADE TRIP— Good Roads Automatic Safety Blade Trip is an exclusive feature of all Good Roads Reversible Blade and One Way Plows. It enables plows to operate at higher speeds without danger of damage to equipment or injury to the operator as a result of road obstacles and obstructions.



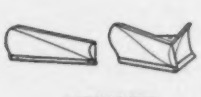
Plow strikes 8" obstruction at full speed . . . springs compress in cylinders and top of blade tilts forward to absorb shock.



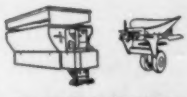
Blade continues forward and rides upward, carrying plow over obstruction with impact negligible to truck or operator.



Still moving at original speed, blade snaps back to plowing position with no damage to machine or operator and without spilling load.



SNOW PLOWS



ICE CONTROL SPREADERS

ESTABLISHED 1878
Good Roads MACHINERY CORPORATION

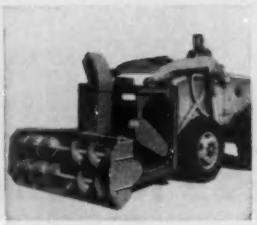
AGGREGATE SPREADER

LEAF COLLECTOR

SCAVENGER

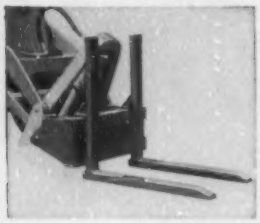
Back Hoe makes a "PAYLOADER" a double-duty digger.

Backfill Blade is available for most "PAYLOADER" sizes.



Rotary Plow has its own engine — loads or throws snow.

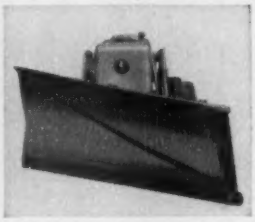
Operator Cabs for greater comfort, winter or summer.



Fork Lift has adjustable fork-spacing for many unit loads.

Scarifier loosens tough soil for faster, easier handling.

Pick-up Street Sweeper attaches on bucket — dumps its loads into trucks.

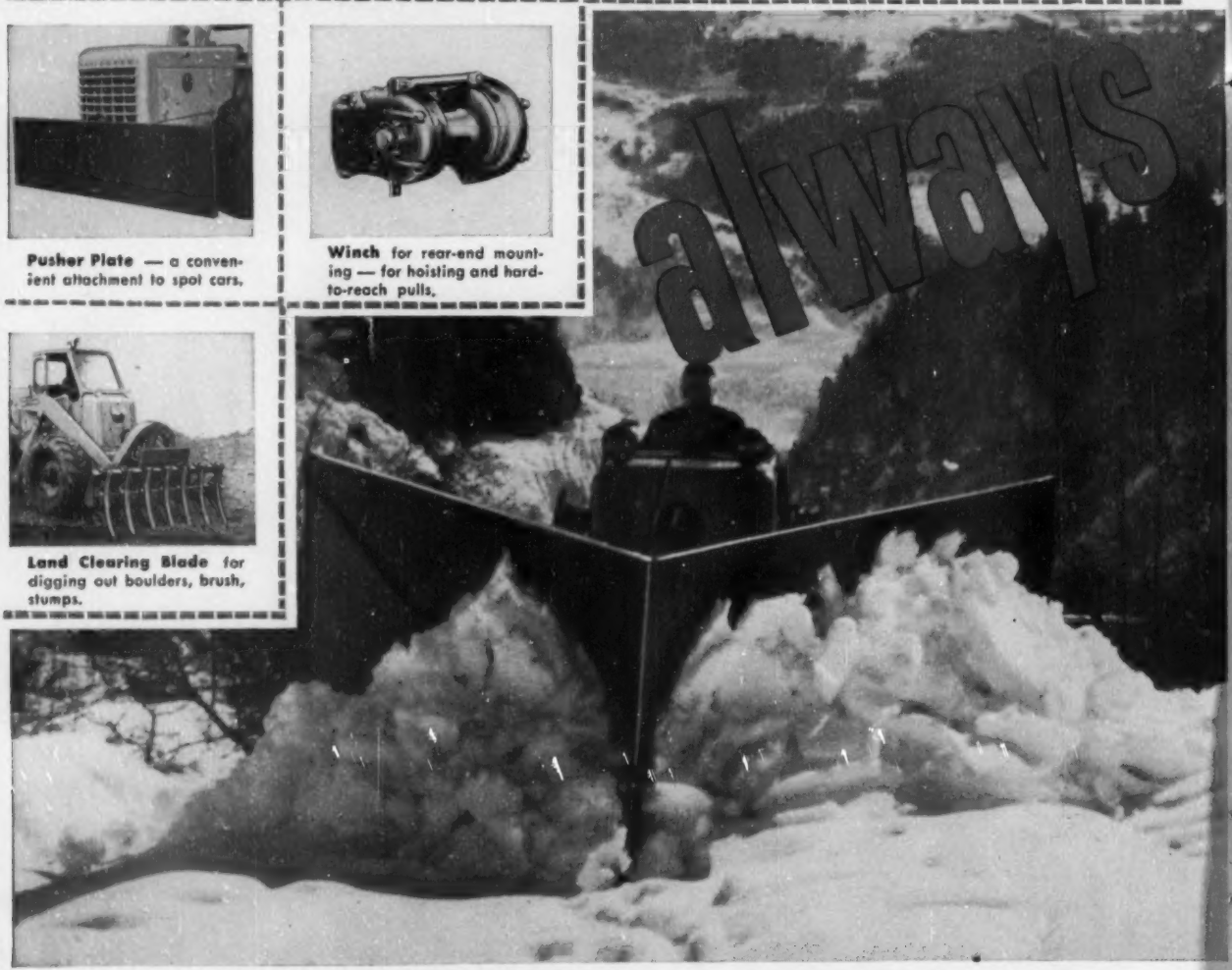


Blade Plows are available — both rigid and reversible, trip blade types.

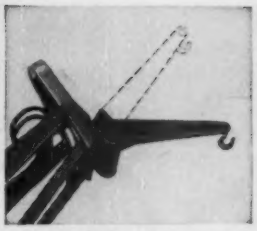
Pusher Plate — a convenient attachment to spot cars.

Winch for rear-end mounting — for hoisting and hard-to-reach pulls.

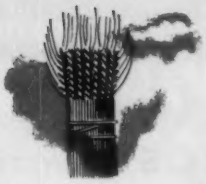
Land Clearing Blade for digging out boulders, brush, stumps.



4-wheel-drive "PAYLOADER" models, with V plow are proven snow fighters for both country and city highways . . . have power to handle heavy snows . . . maneuverability for fast alley-clearing.



Crane Hook quickly mounted to handle pipe, bars, timbers, etc.



"in season"

PAYLOADER

tractor shovels work for you the whole year through

When you buy a standard "PAY-LOADER" you're investing in a machine so versatile that you can use it 12 months of the year — that can dig, grade, spread, pile and load dirt . . . that can handle materials and load snow.

In addition a variety of special buckets, attachments and accessories are available so you can use your "PAYLOADER" for more and special jobs.

For information on the complete, proven "PAYLOADER" line plus ALL the special equipment available, see your Hough Distributor, or write The Frank G. Hough Co.

PAYLOADER®
THE FRANK G. HOUGH CO. · LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

THE FRANK G. HOUGH CO.
[illegible]

Please send me more "PAYLOADER" information.

NAME .....

TITLE .....

COMPANY .....

STREET .....

CITY ..... STATE .....

☐ have distributor call

☐ send information on all seven models

☐ send information on all attachments. 710

Standard buckets can be used to load dirt or snow, but special larger buckets are also available for snow-handling.

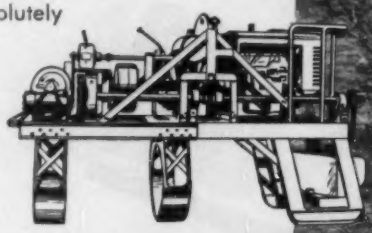
You don't have to stop traffic . . .

. . . to bore road crossings

with the **CROSE** auger-type

ROAD BORING MACHINE

Installs casing as boring progresses — eliminates cave-ins. Absolutely prevents settling of concrete slab highways or railroad beds. Extremely accurate in alignment. Adaptable to all sizes of casing from 3" to 34".



M.J. **Crose** Manufacturing Co., Inc.

2715 DAWSON ROAD • TULSA, OKLAHOMA

DEALERS IN: HOUSTON • NEW YORK • NEWARK, N. J. EDMONTON • DENVER

It's True There are Other "Good" **PIPE DETECTORS**

and **EACH ONE WILL PERFORM ALL THESE JOBS:**

- Detect, trace and center pipe, cable, etc.
- Estimate depth
- Separate parallel pipe, cable and conduit

But...

before you buy a pipe detector from anyone — CHECK THESE IMPORTANT FACTS.

1. Is there a WRITTEN LIFETIME GUARANTEE?
2. Do you get a liberal TRADE-IN ALLOWANCE on your present used equipment?
3. Will they agree to in-the-field competitive testing on *performance—accuracy—reliability?* We think our pipe detector is best—others think theirs is. **WHY NOT GET THE FACTS ON THE "505" PIPE DETECTOR and *COMPARE!!***

WRITE TODAY for the complete "505" story!!

THE Detectron CORPORATION, Dept. 54

5420 VINELAND AVE., NO. HOLLYWOOD, CALIF.

ANTHRAFILT

(Reg. U. S. Pat. Off.)

A Filter Medium For All Purposes

Has outstanding advantages over sand and quartz media:

1. Length of filter runs doubled
2. Only about one-half as much wash water required
3. Less coating, caking or balling with mud, lime iron or manganese
4. Filters out of service less because of shorter wash cycle
5. Better removal of bacteria, micro-organic matter, taste and odor
6. Increased filter output with better quality effluent
7. Not just the top portion, but the entire bed, aids in filtering
8. Can be used in all types of filters using a filter medium
9. A perfect supporting medium for synthetic resins
10. An ideal filter medium for industrial acid and alkaline solutions
11. Decidedly advantageous for removal of fibrous material as found in swimming pool filters

Additional information, recommendations and quotations furnished upon request by

PALMER FILTER EQUIPMENT COMPANY

822 E. 8th St. Erie, Pa.

Engineers and Sales Agents

REPRESENTING —

ANTHRACITE EQUIPMENT CORP.

Anthracite Institute Bldg., Wilkes-Barre, Pa.

CLEARING STORM DRAINS WITH *Flexible* BUCKET MACHINES AT SOMERVILLE, MASS.

Here is a "heap of work" being turned out by Flexible Power Bucket Machines with a "minimum crew," at Somerville, Massachusetts, population 102,351.

Here, indeed, is graphic evidence of the wisdom of engaging in preventative maintenance to control sewer and storm drain obstructions. For a stoppage like this can easily spell trouble with a capital T in an emergency. And emergency cleaning also costs many times as much as maintenance cleaning—the cheapest form of sewer insurance, done the Flexible way.

No matter what the specific problem of a given city—whether sand, gravel, mud, slime, grease, roots, rocks or any combination thereof—there is a "Flexible" model to do the job most economically . . . in all weather. We are constantly improving equipment, methods and workmen's welfare. Ask for an "on the job" demonstration!

Write for our **FREE** *Catalog*

Flexible **SALES CORPORATION**

3786 Durango Ave., Los Angeles 34, Calif.

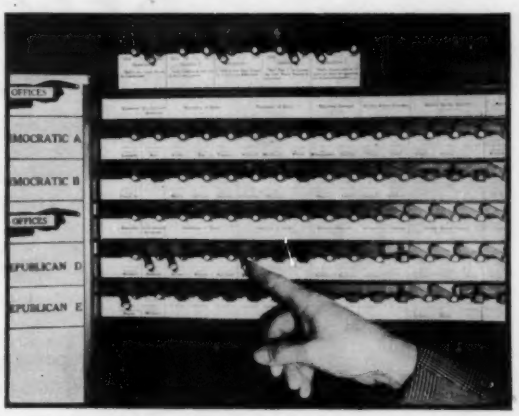
(DISTRIBUTORS IN PRINCIPAL CITIES)

AMERICA'S LARGEST LINE OF PIPE CLEANING TOOLS AND EQUIPMENT

EXPERIENCE *is STILL THE BEST TEACHER*

Over a HALF CENTURY of experience in Engineering, Manufacturing and Installing voting machines has proven the HORIZONTAL TYPE, AUTOMATIC VOTING MACHINE to be the most suitable for long ballots and the most easily understood by the voter.

This convenient eye-level arrangement of the office titles affords as much prominence to Candidates for Local Office as those for National or State offices. Over 6,000 Communities in 31 States from Coast to Coast have installed the horizontal type Automatic Voting Machine. Investigate the advantages of the "Mechanical Ballot" for your community. Write—

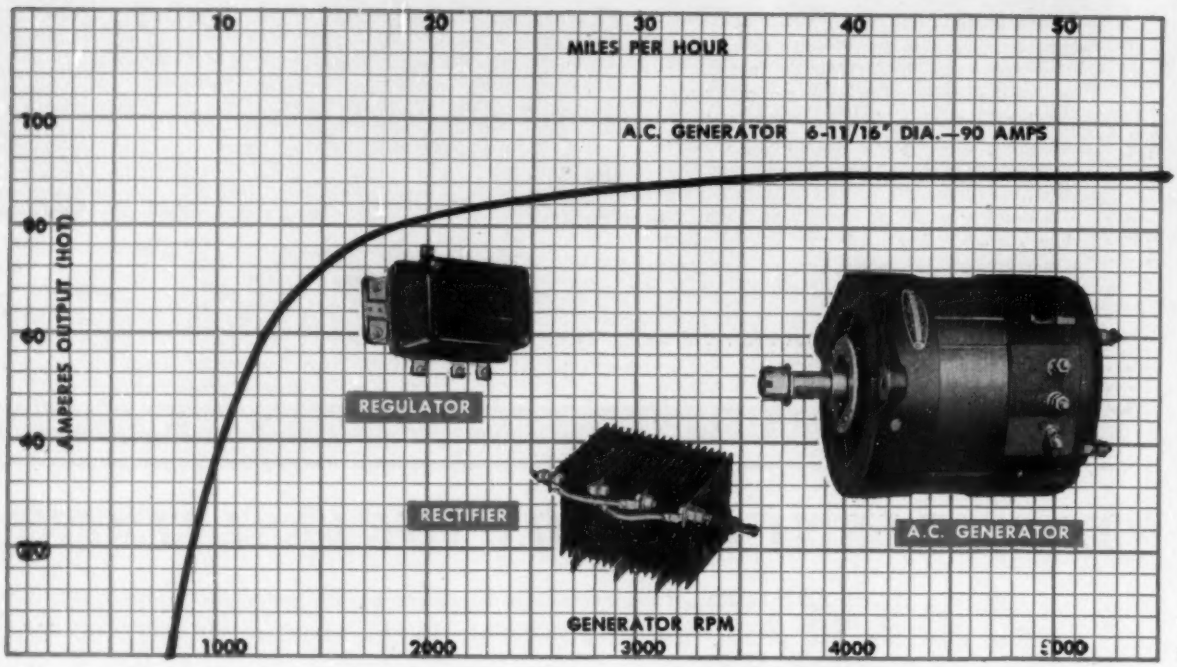


AUTOMATIC VOTING MACHINE CORPORATION

JAMESTOWN, NEW YORK

Power Packed and

HERE'S THE A.C. ANSWER TO EXTRA-HEAVY ELECTRICAL DEMANDS



DELCO-REMY

A. C. Generator, Regulator and Rectifier

Here's the answer for "problem" vehicles—Delco-Remy's new long-lived A.C.-D.C. charging system! It's specifically designed to meet the *extra*-heavy electrical demands of public utility trucks and other vehicles equipped with two-way radio, floodlights or any extra electrical units . . . ample current reserve picks up discharged battery quickly in operation. Delco-Remy A.C. generators are suitable for use at all engine speeds.

With output ranging from 30-40 amperes at curb idle and up to 90 amperes at higher engine speeds, the new Delco-Remy A.C.-D.C. charging system meets all electrical needs under the toughest operating conditions. Included in the new system is the A.C. generator, a matching regulator, and a rugged, dependable dry-plate rectifier which converts generator A.C. output to direct current.

Application packages complete with installation instruction sheets for popular makes of cars and trucks are now available. The conversion job is simple. For further details and application data, see your nearest United Motors distributor.

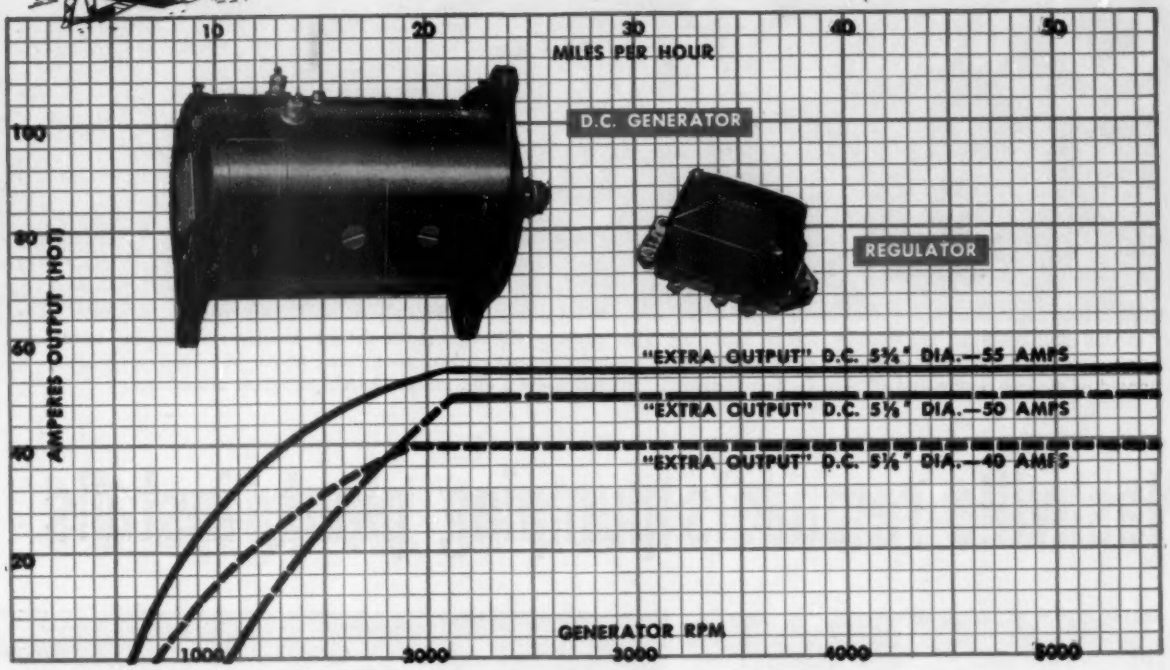
A GENERAL MOTORS PRODUCT — A UNITED MOTORS LINE

DISTRIBUTED BY WHOLESALERS EVERYWHERE

WHEREVER WHEELS TURN OR PROPELLERS SPIN

Right for the Job

HERE'S THE D.C. ANSWER TO HEAVY ELECTRICAL DEMANDS



DELCO-REMY

Extra-Output D. C. Generators and Matching Regulators

Delco-Remy extra-output D.C. generators are an economical answer to the electrical needs of public utility pickup or panel trucks as well as other vehicles with additional lights, two-way radios, or other special electrical equipment in medium to heavy-duty service. Delco-Remy extra-output D.C. generators are low in cost, simple to install, economical to maintain.

DELCO-REMY 40-AMP GENERATOR has low cut-in, about 7 mph, charges from 11 to 17 amperes at curb idle . . . full output about 18 mph —for vehicles customarily used in heavy traffic.

DELCO-REMY 50-AMP GENERATOR has slightly higher cut-in, about 11 mph . . . full output about 21 mph—for vehicles customarily operated at higher speeds, with minimum slow driving.

DELCO-REMY 55-AMP GENERATOR has very low cut-in, about 6 mph; charges at curb idle from 20 to 30 amperes . . . attains full output at 20 to 25 mph—for vehicles customarily operated at low speeds with added electrical loads, such as city taxicabs and police cars.

For further details and application data, see your nearest United Motors distributor.

Delco-Remy

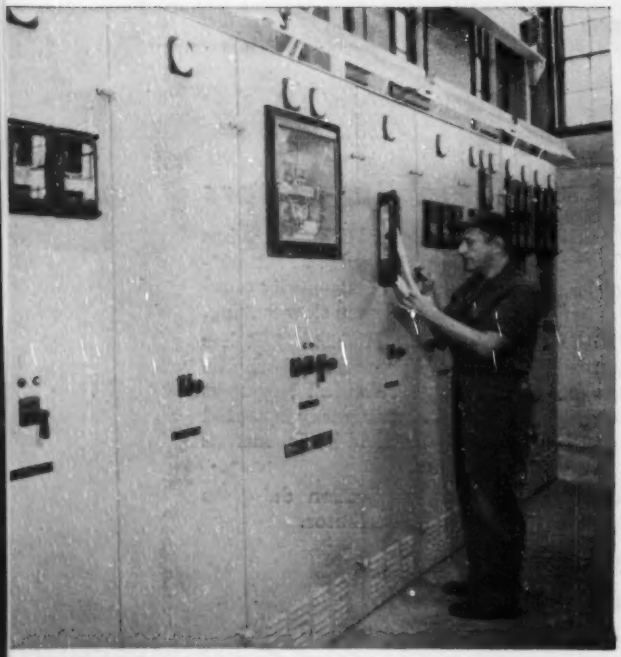
DIVISION, GENERAL MOTORS CORPORATION, ANDERSON, INDIANA

WHEREVER WHEELS TURN OR PROPELLERS SPIN

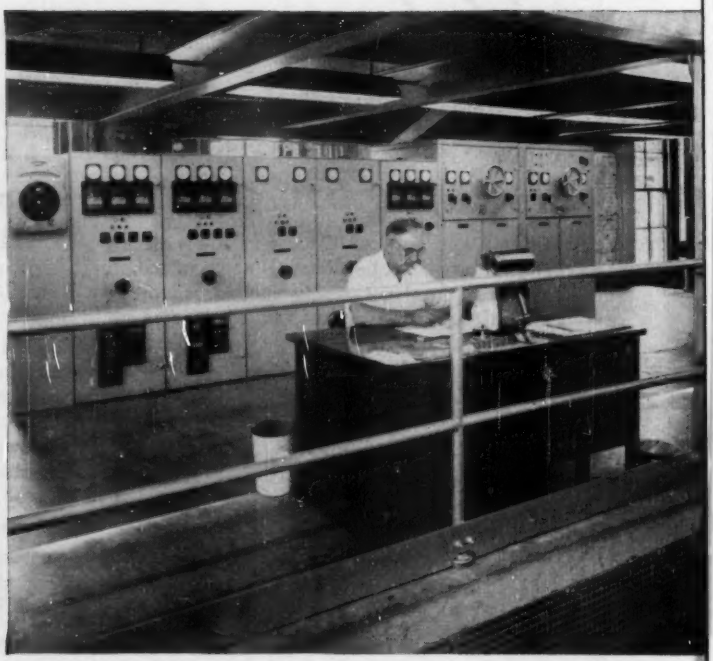
ENGINEERING REPORTS:

USING THE SAME BUILDING at the George Reyer Pumping Station, Chester Engineers and G-E engineers designed a new system, composed of modern pumps and efficient G-E equipment, to replace the old steam-driven machinery. Result: water-pumping capacity has gone from 40 to 100 mgd with lower operating costs and more efficient personnel utilization.

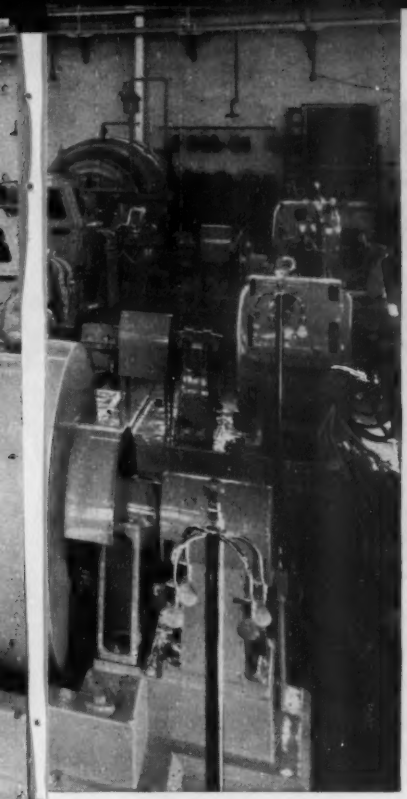
Nashville remodels pumping plant, installs



ADEQUATE PROTECTION and simple control of all pump motors is provided by this compact 4160-volt G-E metal-clad switchgear located in a convenient corner of the plant.



CENTRAL CONTROL for G-E synchronous motors and 600- and 900-hp wound-rotor induction motors is provided by this G-E main control panel. Seated at his desk is control-panel operator Louis Gerard.



PROJECT CO-ORDINATION helped insure "on time" completion of this job. G-E Sales Engineer W. Crockett, Jr. is shown here reviewing progress with Robt. L. Lawrence, Jr. (right), Director and Chief Engineer, Water Works Dept. of Nashville.

G-E equipment to double its water supply

Engineered electric system replaces former steam drives, adding 60 mgd to give city many years of abundant water

Unexpected industrial growth and a parallel increase in population made it necessary for city officials of Nashville, Tennessee, to plan for additional water supply. Their foresight was the moving force in planning an installation which would be more than adequate for at least 20 years.

To put their plan into action they called in the Chester Engineers, consultants, of Pittsburgh, Pa. General Electric application engineers, working closely with the city's consultants, helped plan the complete program. The G-E team made sure that manufacture and delivery of the electrical equipment was co-ordinated with the installation schedule of Burford, Hall & Smith, mechanical contractors, of Atlanta. This project co-ordination helped speed job completion. Finally, G-E Service Engineers were on hand to help train operating personnel.

The high efficiency of the new installation, compared to the former steam-driven equipment, has enabled Nashville to obtain 100 mgd of pumping capacity instead of the previous 40 mgd, with the same space facilities and lower operating costs. If *you* are considering a water supply program for your city, contact your local G-E Apparatus Sales Representative early in your planning, when his help can save you most.

GET YOUR CITY INTERESTED IN ITS WATER SUPPLY

Show our full-color movie "Pipeline to the Clouds." It's part of G.E.'s "More Power to America" Water Supply Program. Write for Bulletin GEA-5555 to General Electric Company, Section 666-84, Schenectady 5, N. Y.

Engineered Electrical Systems for Waterworks

GENERAL ELECTRIC

RUST-PROOF, NO PAINTING
MAINTENANCE-FREE
FIRST COST IS LAST COST

COST? IN MOST CITIES,

Nichols NEVER-STAIN Aluminum Chain Link Fencing costs only about 15% more than ordinary fencing on the complete installation.

This slight differential is more than offset the first time an ordinary fence is painted—usually within five years.

The ideal fence for . . . **PARKS, GARDENS, POOLS, STORE AND EQUIPMENT AREAS, ETC.**

No other type of fencing in this price range offers all of these advantageous economical features. The savings in painting alone will soon pay for the fence itself. Here is modern fencing that enhances the appearance of any property or site. Write for complete descriptive brochure — address Dept. ACM.

NICHOLS WIRE & ALUMINUM CO.
GENERAL OFFICE & FACTORY — DAVENPORT, IOWA

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attention civil defense chiefs!

MODERNIZE YOUR **WARNING SIGNAL SYSTEM** with this NEW extra-compact powerful **BENJAMIN SIREN!**

This new siren is especially designed for modern multiple-signal installations, which overcome problems of atmospheric conditions, wind direction and industrial din. A small-yet-powerful high-torque, 10,000 r.p.m. motor and precision-machined housing makes possible extra-compact design. Famous Benjamin built-like-a-battleship construction prevents moisture from entering and assures long, trouble-free operation.

TYPICAL APPLICATIONS OF THE BENJAMIN SIREN

for civil defense

for boiler alarms

for plant protection

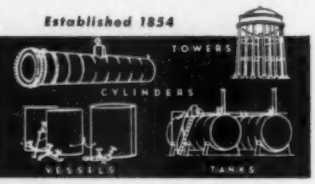
FREE SIGNAL BOOK! Send for your copy of this most complete book on signaling! Benjamin Electric Mfg. Co., Dept. AC, Des Plaines, Ill.

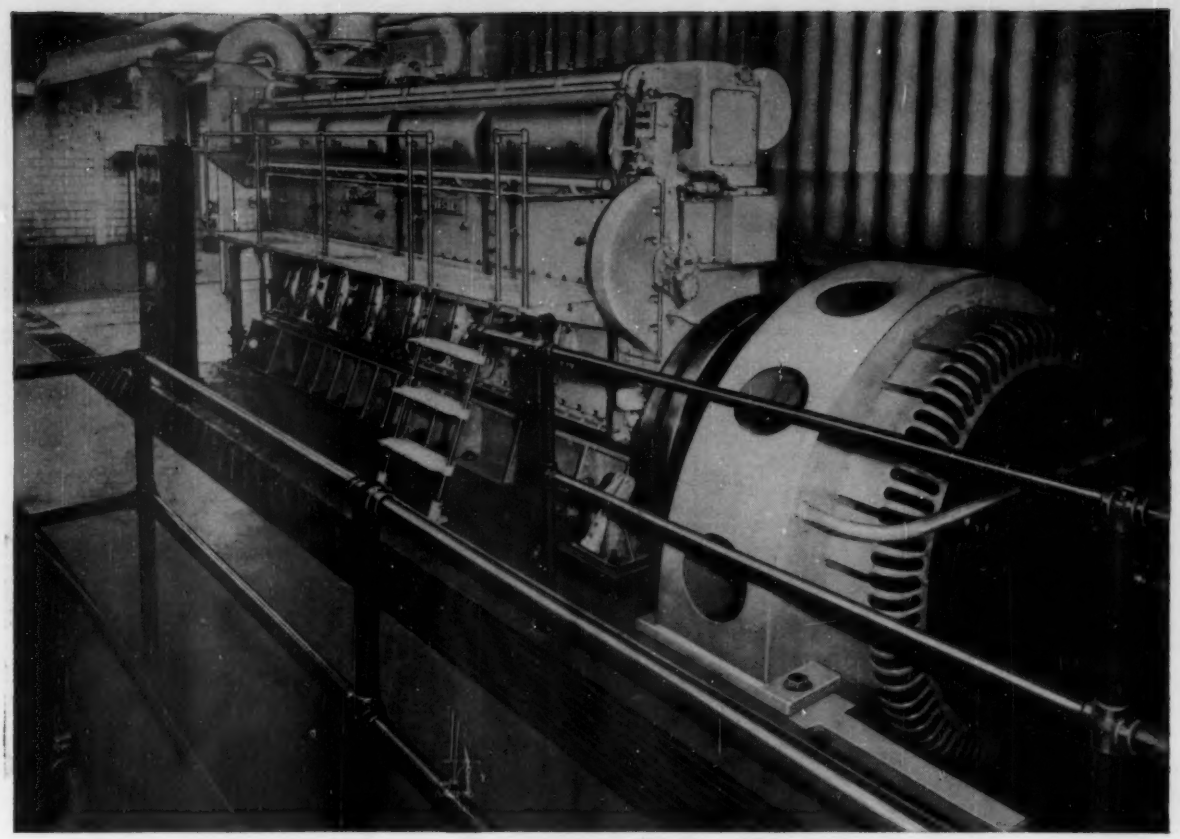
809 CD

THE FIRST HUNDRED YEARS

From a small iron-works in 1854, we have been fortunate in growing to be one of America's largest metal fabricating industries . . . For the privilege of celebrating our Centennial, we express our appreciation for the friendship of four generations of customers, and the loyalty of four generations of workers.

R.D. COLE
MANUFACTURING CO.
NEWNAN, GA.





Not yet "broken in"... but producing over 14 K.W.H. per gallon!

That's the report on this new Superior Model 65 Diesel recently installed in the Petoskey, Michigan, power plant. This record of high level performance at low operating costs—even under widely oscillating load—is typical of the Model 65.

Designed to pack more horsepower into less weight and space, this Superior Model 65 keeps building and installation costs down. You'll find that fuel costs are low, too, especially when it's equipped for dual-fuel operation. By simply pushing a button, you can switch between diesel and sewage (or other by-product) gas.

There's long life in the structure of the Model 65, too. From its heavy-duty, welded steel block to its alloy iron cylinder heads and advanced fuel system, you'll find only the finest in materials and craftsmanship—the quality that only its maker's 100 years of engine building experience can provide.

Whether you're interested in diesels for generator, pump, or other drives, you'll want complete facts on the Superior Model 65. Just write or stop in at the nearest office listed below.

IMPORTANT FEATURES OF THE SUPERIOR MODEL 65

- Fuel economy is a fact with this precision-built 4-cycle heavy-duty engine. Improved combustion and scavenging are two of the reasons.
- Long-lived Superior engines consistently produce lowest overall power cost, by fewer parts replacements and lower maintenance.
- All models can be specified for Dual Fuel operation (by-product gas and diesel fuel oil).
- Maximum accessibility to all operating parts for simple and easy maintenance.
- Available in both 6 & 8 cylinder models, naturally-aspirated or supercharged.
- Size to fit any need from 420 to 1250 KW, or 580 to 1765 BHP.

DIESEL DUAL FUEL GAS — THE NATIONAL SUPPLY COMPANY — ATLAS Imperial DIESEL ENGINES — Superior ENGINES — DISTRIBUTOR OF Lister DIESELS IN U.S.A.

THE NATIONAL SUPPLY COMPANY

ENGINE DIVISION PLANT AND GENERAL OFFICES: SPRINGFIELD, OHIO

SALES AND SERVICE POINTS: Gloucester, Massachusetts • Houston, Texas • Fort Worth, Texas • San Diego, California Oakland, California • Terminal Island, California • Ketchikan, Alaska • Washington, D.C. • Chicago, Illinois • Portland, Oregon • Astoria, Oregon • Casper, Wyoming • Halifax, Nova Scotia • Vancouver, B.C. • Toronto, Ontario • Park Rapids, Minnesota • New York, New York • Seattle, Washington • New Orleans, Louisiana • Pittsburgh, Pennsylvania

The Washington, D.C. Suburban Sanitary Commission is filling in an old gravel pit on this sanitary landfill operation near Hyattsville, Md. The 29,900-lb HD-9G Tractor Shovel shown here is spreading and compacting refuse on the slopes. Cover material for this job is carried from 75 to 100 ft in the HD-9G's two-cu-yd bucket.

TRACTOR SHOVELS PROVE IDEAL MACHINES FOR SANITARY LANDFILL WORK

Allis-Chalmers Tractor Shovels are made to order for the sanitary landfill system of garbage and refuse disposal. Any one of the four different sizes — one, two, three and four-yard capacities — can do the complete job . . . excavate trenches, spread and compact refuse, apply an even cover of dirt fill.

Allis-Chalmers Tractor Shovels are more than just standard tractors equipped with front-end loaders. They are designed and built as complete units to give the best service possible. Many features like these add to their work capacity: all-steel, box A-frame that carries heavy working strains; extra long tracks and truck frames that give better balance for shovel work; 1,000-hour lubrication intervals for truck wheels, idlers and support rollers that eliminate daily maintenance of these parts; simple shift pattern that allows faster work cycles; unit construction for less down time while servicing. For added versatility, there are attachments that can be quickly interchanged with the bucket to keep the tractor busy on other jobs all year long.

★ ★ ★

See the complete line of Tractor Shovels and bulldozers at your Allis-Chalmers dealer, or write for booklet "Sanitary Landfill, An Important Community Benefit."

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

You can't afford to forget...

That cast iron pipe lasts over 100 years—

That cast iron pipe is inherently stronger, tougher, uniform in quality—

That cast iron pipe offers low installation costs, plus savings throughout its life because of low maintenance costs—

That cast iron pipe's long life and economy saves millions of tax dollars—

That cast iron pipe is the standard conduit for carrying water underground—

That before you experiment with substitutes in your waterworks system, you should study these facts and recognize the guarantee they offer: only cast iron pipe gives you a *proven record* of economy through *decades of use!* And experienced city officials have, for over three-quarters of a century, chosen Clow Cast Iron Pipe as the finest made. They know Clow offers consistent high quality, coupled with excellent service and fast delivery. They know *centrifugally cast* Clow Pipe offers longer life, greater economy and that it meets all currently approved specifications now in existence. Write today for complete, factual information.

JAMES B. CLOW & SONS

201-299 North Talman Avenue • Chicago 80, Illinois

and their National Cast Iron Pipe Division, Birmingham, Ala.
Subsidiaries: Eddy Valve Co., Waterford, N. Y.
Iowa Valve Co., Oskaloosa, Iowa

Builds Land with Buried Waste

El Paso, Texas, uses Sanitary Landfill Method of Refuse Disposal to Create Valuable Industrial Sites

The city of El Paso, Texas, has an easy, efficient way to get rid of refuse and saves money over the old way in the process.

El Paso, like many other progressive American communities, uses the Drott-Bullclam Shovel Method of Sanitary Fill for garbage disposal. More than 2200 cubic yards of garbage and other waste is deposited daily on the fillsite by 30 city-owned collection trucks, 34 commercial refuse haulers and 308 private concerns. Dumped on what was part of the old open dump, refuse is spread, compacted and covered by either of the city's two INTERNATIONAL TD-18A crawler tractors equipped with Drott-Bullclam shovels.

With the steady flow of fill material, the once worthless land is rapidly converted into valuable commercial and industrial sites, sold for sums sufficient to cover all operating expenses.

As Ed F. Muckelrey, Superintendent of Sanitation for the city of El Paso says, *"We're building needed land and beating the common fly and rat problem at the same time.*

"It was a tough job putting the old dump in shape. We started by covering each day's accumulation with old ashes. Now we use topsoil. And we have no trouble selling the clean, completed portion of the fill to meet our costs. One of the last parcels sold for $25,000.

"I can't praise the machines enough that made this landfill possible."

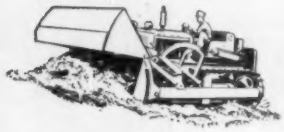
Only INTERNATIONAL crawler tractors with matched Drott-Bullclam shovels are specifically designed for the Sanitary Landfill Method of refuse disposal.

To select the site, train the operator and put the most efficient unit on the job, call your INTERNATIONAL Industrial Distributor today.

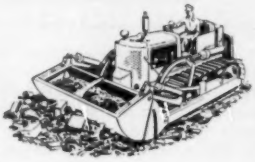
Or write:

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS
DROTT MANUFACTURING COMPANY, MILWAUKEE 8, WISCONSIN

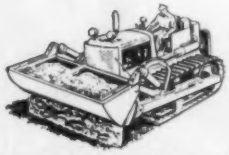
ONE OF THE TWO INTERNATIONAL TD-18A crawler tractors with Drott-Bullclam shovels owned by the city of El Paso compacts and covers the refuse deposited daily on the community's Sanitary Landfill site. Visible in the distance is a radio tower and transmitter, erected on land "built" by the Sanitary Landfill Method.



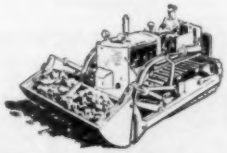
1. Prepares the Site



2. Crushes and Compacts Refuse



3. Transports and Spreads Earth Cover



4. Grades and Levels Finished Area

Defender of Community Health

BULLCLAM BY

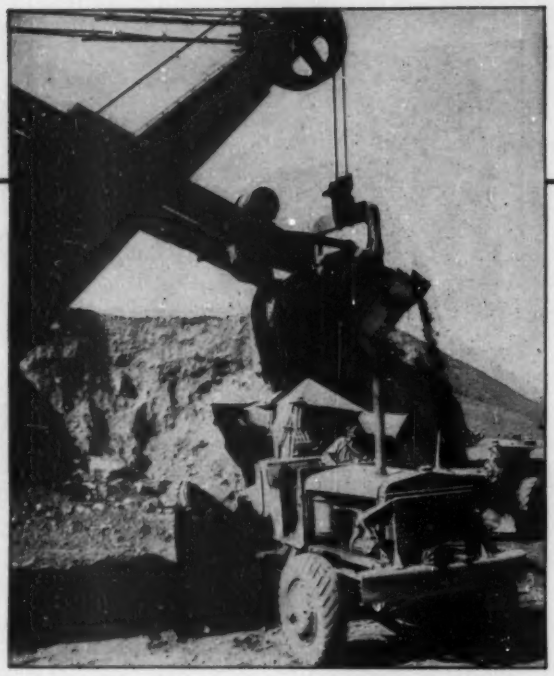
DROTT

INTERNATIONAL HARVESTER

POWER BY

INTERNATIONAL

MAKES EVERY LOAD A PAYLOAD



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NEW YORK

one of America's foremost surety companies

INVISIBLE ARMOR®

This symbol on your bond or policy guarantees satisfaction.

INERTOL®

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● Esso had a tough problem at its Linden, New Jersey, refinery: complete protection for a vital pipeline against corrosive refinery wastes. Inertol Co., Inc., was consulted, and Inertol coatings were specified. Result? Long-term protection was assured. Esso is a satisfied customer.

Inertol makes a complete line of industrial maintenance coatings—each is especially formulated to protect a specific surface. Learn how Inertol coatings lower plant maintenance costs. The coatings Esso used may be the answer to your painting problems—or perhaps you can send costs down with Inertol's new rust-stopping RUSTARMOR®. It *paints out rust*—without expensive sandblasting. And RUSTARMOR never gets sticky—it's hygroscopically controlled. Comes in eleven attractive colors.

Send for FREE informative folder and color card CA-4 today! Just write your name, title, firm name and address in the margin of this page and mail.

INERTOL CO., INC.

Maintenance Paints Division

485 Frelinghuysen Avenue, Newark, New Jersey
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Inertol

INERTOL PROTECTION MEANS LOWER MAINTENANCE COSTS

LONGER RANGE—TARGET VALUE FOR YOUR HIGHWAY TRAFFIC SIGNS WITH GROTELITE REFLEX REFLECTIVE SHEETING

Grotelite

REFLECTIVE SHEETING

SMOOTH S S SURFACE

This highly reflective, smooth surface reflex reflective sheeting makes a smashing, attention-compelling sign with longer range target value and full range legibility. Easily read night or day. The smooth, durable, self-cleaning surface can be screened, sprayed or brushed. It is easy to apply and makes the best long life, economical signs and markers. Available in sheets and completed signs.

THE Grote MANUFACTURING CO., Inc.
GROTE SQUARE - BELLEVUE, KY.
(Established 1901)

STOP

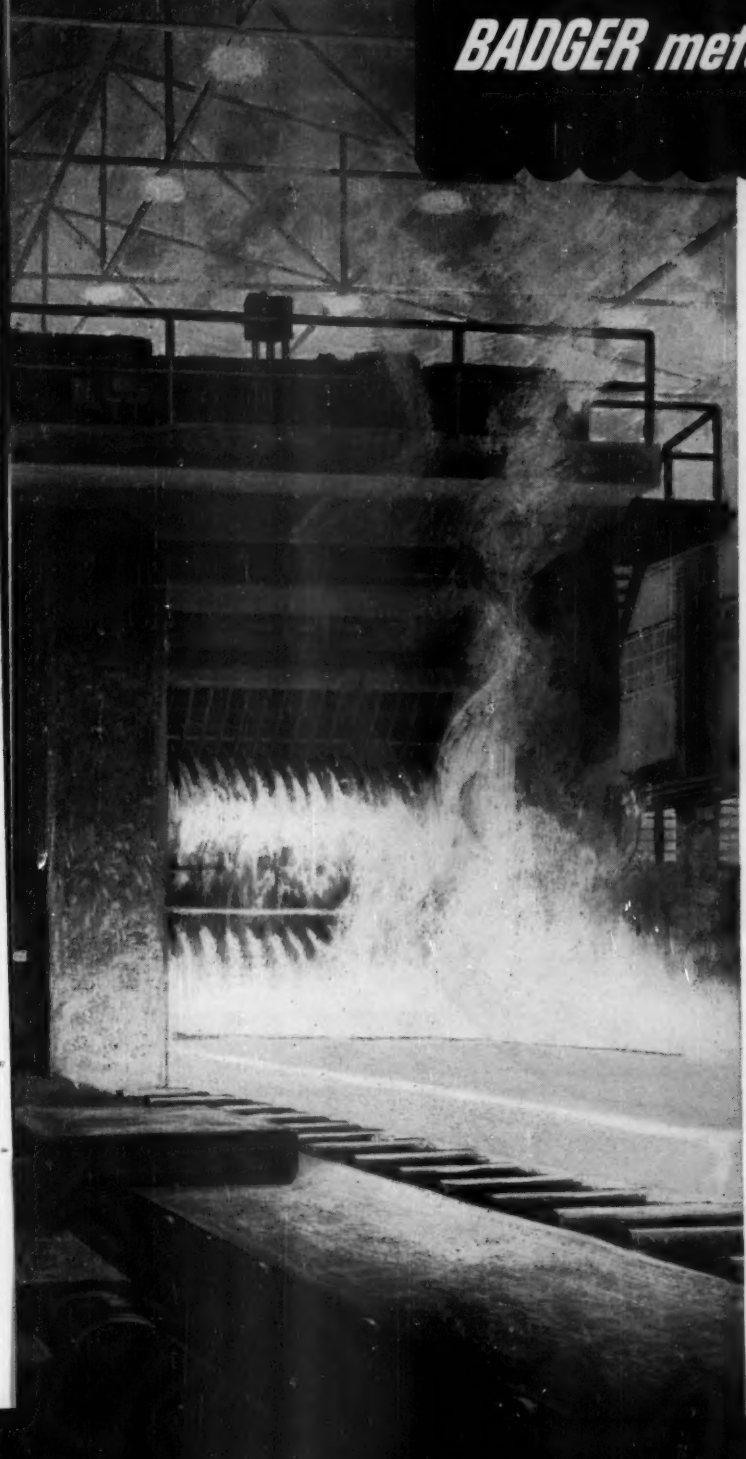
Complete Line of Embossed Metal Traffic Signs, Reflectors and Street Name Plates

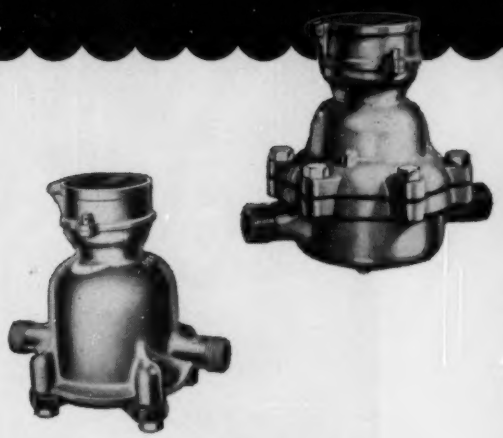
DEAD END

SIGNALS AHEAD

Water is vital...

BADGER meters conserve it BETTER!





AMERICA'S steel production now tops 72,000,000 tons annually . . . yet it actually takes more water than iron ore to produce today's steel. Badger meters conserve water for such vital needs . . . measure water usage precisely . . . help eliminate water waste in thousands of communities. They make sure that homes and industrial projects alike receive a fair share of the supply, and pay a fair price for the water used. Thus, Badger meters actually help keep water departments self-supporting for thousands of communities. No wonder waterworks men everywhere praise Badger meters . . . recognize them as the meters that *save water, work and money — all ways.*

BADGER
Water Meters

Badger Meter Mfg. Co.
Milwaukee 45, Wisconsin

"Measures the water of the world"

There's no customer

Ewing Galloway

This is Detroit—the Automotive Capital of the World.

Bettmann Archive

Old print showing Detroit about a century ago, from the Canadian side of the river.

MODERNIZED cast iron

like an old customer!

DETROIT installed cast iron water mains 116 years ago... and installs them today!

One hundred years ago, Detroit was a city of 40,000. Today it is the Automotive Capital of the World. Today's two million population (estimated) requires over three thousand miles of mains of which 97% are cast iron. Several of these mains are still functioning after a century and more of service. Customers served have increased from 5300 a century ago to nearly 400,000 (city only).

When you have customers with an unbroken record of buying your product for over a century, you naturally prize them. They're scarce in any long-established business or industry. The cast iron pressure pipe industry is proud to have 60 such customers—utilities that have been buying cast iron pipe for water or gas mains for 100 years or more.

Cast iron pipe has been a rugged, long-lived product from the earliest days. Today's *modernized* cast iron pipe, centrifugally cast, is even stronger, tougher, and more uniform in quality. And, where needed and specified, it is centrifugally lined with cement mortar to assure sustained carrying capacity throughout the long life of the pipe.

Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 122 So. Michigan Ave., Chicago 3.

CAST Q IRON

The Q-Check stencilled on pipe is the Registered Service Mark of the Cast Iron Pipe Research Association.

One of several cast iron water distribution mains still functioning in Detroit after a century and more of service.

pipe FOR MODERN WATER WORKS OPERATION

PROGRESSIVE COMMUNITIES SELECT

Koven

ALL STEEL SWIMMING POOLS

THE POOL WITH THE LOWEST MAINTENANCE

The choice of budget-wise officials, KOVEN All Steel Swimming Pools are the pride of many leading communities. Recommended by architects for their sturdy good looks, they offer years of trouble-free economy... retain their beauty with only an occasional coat of paint. The only leak-proof type built, KOVEN All Steel Swimming Pools are of rugged welded steel construction and are not subject to the weaknesses found in other types of pools. Clean and modern in design, they are attractively shaped in a variety of forms and sizes which can be adapted to any existing arrangement. What's more, KOVEN with over 70 years' experience in steel fabricating, assumes all responsibility for construction details... from the selection of size to final installation. Call or write for a consultation — no obligation.

Send for our free, color-illustrated booklet.

PLANTS:

Jersey City, N.J.

Dover, N.J.

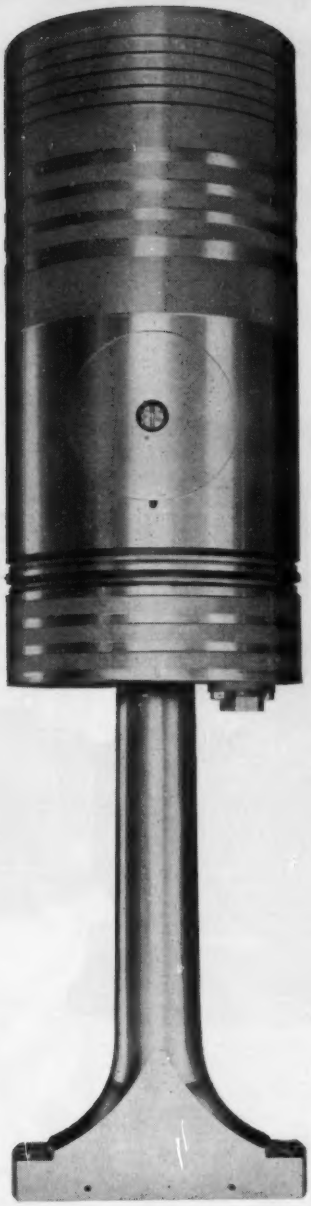
Trenton, N.J.

- *The only leak-proof type built*
- *Indoor and outdoor models*

KOVEN STEEL SWIMMING POOLS, INC.
A DIVISION OF L. O. KOVEN & BRO., INC.
154 OGDEN AVENUE, JERSEY CITY 7, N. J.

Q. How can the Hamilton Diesel burn heavy oil so cleanly?

A. *The Hamilton Diesel has a semi-hemispherical combustion chamber and exclusive rotary valve and port design. These produce excess combustion air, large combustion volume and high turbulence. Result: efficient burning of the heaviest residual fuels...with clean exhaust and normal wear!*



Piston and rod assembly from a 21½ x 27½ HAMILTON DIESEL

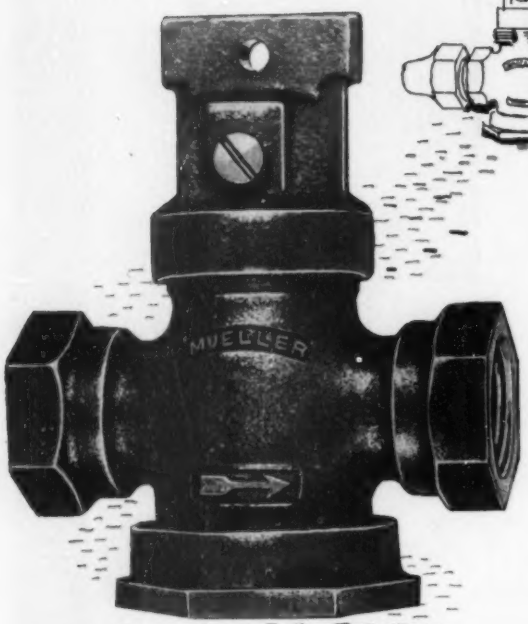
Hamilton Division • Hamilton, Ohio

BALDWIN - LIMA - HAMILTON

MUELLER CURB STOPS

for the finest in...

design...
materials...
workmanship!



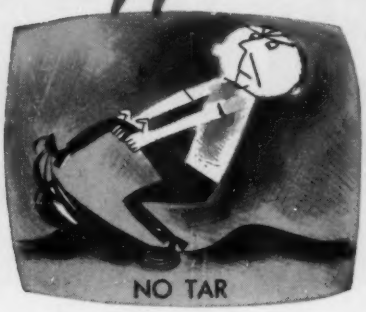
Since the founding of Mueller Co. in 1857 by Hieronymus Mueller, the inventor of the tapping and inserting machine and many other products for the water industry, Mueller Co. has been a pioneer in the development of water works products of the highest quality. The quality material and design of present Mueller water works brass goods are a direct result of these years of patient research and testing in the laboratory and in the field.

And, the art of combining fine designs and materials into quality finished products has been an earnest endeavor of Mueller Co. for nearly a century. A great fund of production techniques and craftsmanship makes possible precision brass goods that must pass rigorous tests before they are released to the trade.

Mueller Curb Stops are typical of the excellent design, materials and workmanship found in all Mueller products—many of which have been chosen as "standards" of the Water Works Industry throughout the United States, Canada and many foreign countries.

MUELLER CO., *Dependable Since 1857*
Main Office & Factory Decatur, Illinois

Only the Wiggins Gasholder*



has the dry fabric seal that

eliminates maintenance problems!

Write for information

WIGGINS VAPOR SEALS
GENERAL AMERICAN
TRADE MARK

GENERAL AMERICAN TRANSPORTATION CORPORATION
135 South La Salle Street
Chicago 90, Illinois

*PATENTED

221 TRENCHLINER DIGS 8½′ DEEP 16 TO 36″ WIDE . . .

For wider, deeper trenches, check Parsons 250 Trenchliner (above) . . . digs 16 to 42 in. wide, 12½ ft. deep, up to 9¾ ft. per minute. Bigger ladder-type 310 Trenchliner digs 18 to 54 in. wide at 17-ft. depth with single boom . . . and 6 ft. wide, 12 ft. deep with dual booms. Other Parsons Trenchliners include 2 wheel-types, full crawler mounted, and mobile, rubber-tired Trenchmobile®.

Send to: **PARSONS COMPANY,** Newton, Iowa
for bulletins on: ☐ 221 ☐ 250 ☐ 310 Trenchliners

NAME _____

TITLE _____

STREET _____

CITY, STATE _____

For city work, here's the handiest trencher you've ever seen . . . dodges poles, hugs curbs, undercuts sidewalks, makes vertical set-ins, loads trucks. What's more, you get 30 digging feeds up to 13¾ ft. per minute, 12 trench widths from 16 to 36 in., and depths to 8½ ft. with Parsons 221 Trenchliner.

Easy-in, easy-out "Tap-In" teeth assure maximum trench production at every depth, width, in all soils. Sloping ladder boom undercuts sidewalks, sewers and old mains . . . makes vertical set-ins flush with buildings, foundation walls. Boom is shiftable, digs within 10 in. of curbs, poles and buildings in narrow alleys and streets. Reversible spoil conveyor dodges side obstructions without swerving from grade line . . . shifts through machine by power in less than 1 minute, dumps to either side. Arc-type conveyor also reaches up 6 ft.-4 in. (8 ft.-2 in. with extension section) for loading trucks.

Get all the details on this versatile 221 Trenchliner from your Parsons distributor, or send for bulletin.

PARSONS — BUY KOEHRING PRODUCT

PARSONS *Trenchliners*®

(Koehring Subsidiary)

15-TON LIFT SERVICE

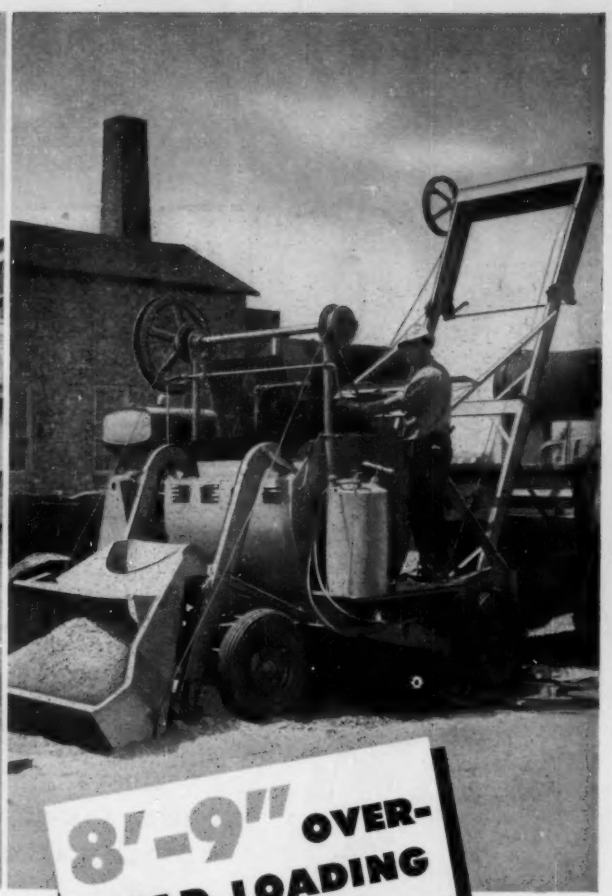
. . . with KOEHRING

32½ M.P.H. 205 TRUCK CRANE

COMBINING heavy-lift capacity with high-speed, rubber-tired mobility, Koehring 15-ton Truck Crane is the most efficient answer for widely-scattered lifting and material-handling jobs around town. Where work requires frequent moves over pavement and through city traffic, this mobile Truck Crane rolls along at speeds to 32½ m.p.h. There's no waiting for trailer, no loading delays. Hinged boom folds back for ample travel clearance, saving more time on every job-to-job move.

Maximum 15-ton lift capacity (boom lengths from 25 to 55 feet) gives this heavy-duty Truck Crane plenty of operating stability to handle over-size clamshell and dragline buckets on a wide work range . . . quickly converts to ½-yd. shovel or hoe . . . also available on crawler mounting.

Other Koehring Heavy-Duty sizes up to 79½-ton lift . . . 2½-yd. dipper capacities. See your Koehring distributor for complete facts, or write to us for catalogs.



8′-9″ OVER-HEAD LOADING

. . . with KWIK-MIX

BITUMINOUS TOWER LOADER

NOW you can load bituminous mix into trucks, overhead hoppers, or stockpile with Kwik-Mix Tower Loader attachment. Available for both Kwik-Mix 10 and 14 cu. ft. Bituminous Mixers, it provides 7′-9″ to 8′-9″ discharge height . . . saves time and cost of overhead mixer installations on many jobs.

Big bucket holds full mixer batch, is raised by power, dumps automatically at top of tower. Bucket travel and discharge are completed while next batch is being mixed . . . no delay to mixer production. It is single lever controlled by mixer operator . . . mixer engine supplies the power. Tower Loader is quickly collapsed for ample travel clearance . . . is also available on Kwik-Mix 16-S and 11-S Dandie® Concrete Mixers for 9′-2″ overhead loading.

Ask your Kwik-Mix distributor for the facts, or write us. Also check Kwik-Mix line of bituminous, 3½-S to 16-S concrete, tilting and non-tilting plaster-mortar mixers, and Moto-Bug® (power wheelbarrow).

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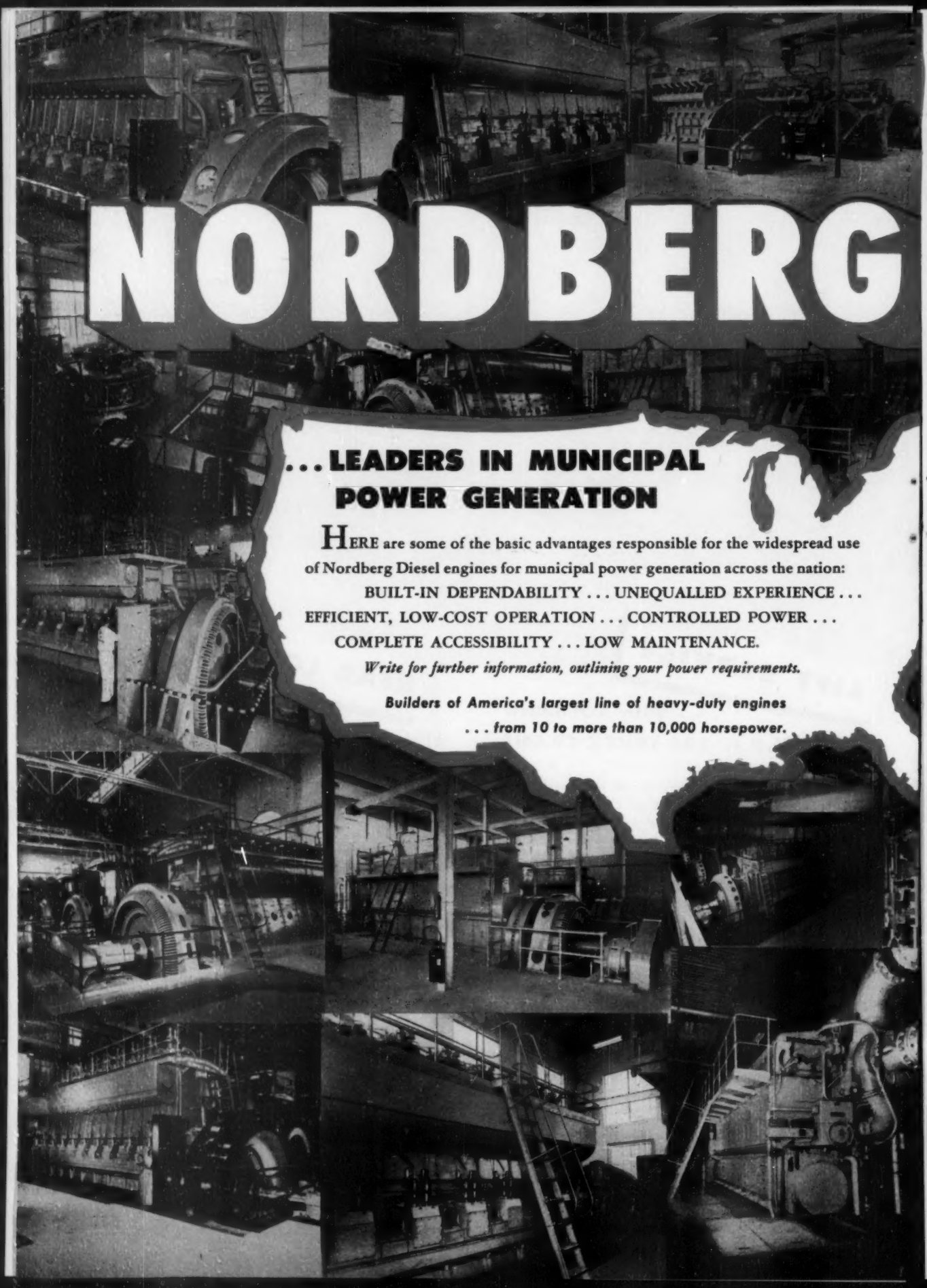
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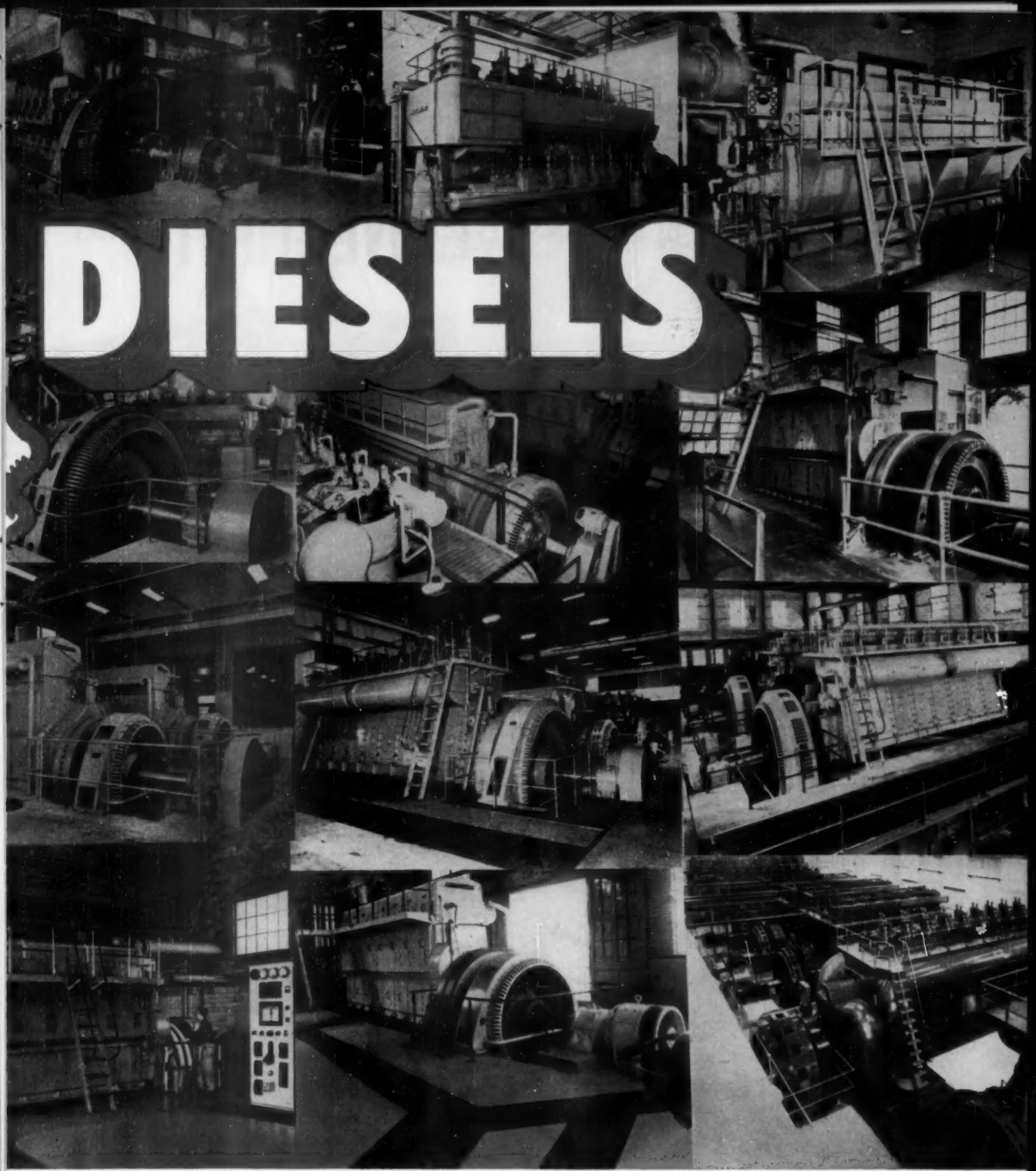

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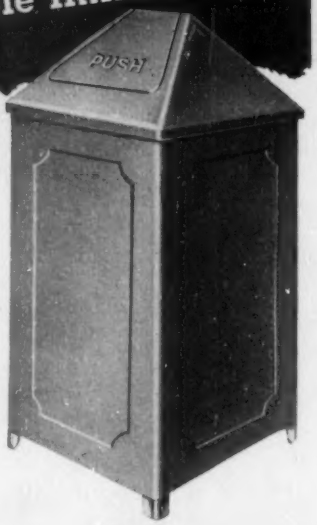

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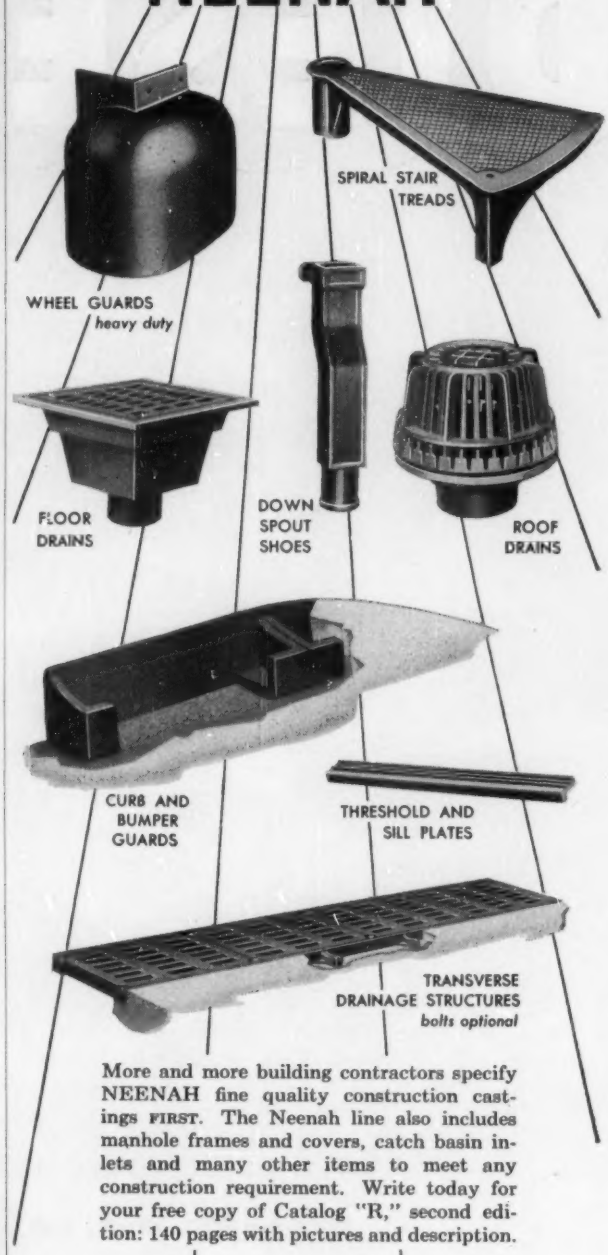

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The Neptune Meter Company has adhered to this principle for over 50 years. During that time many improvements have been made to Trident meters. Yet none of these has affected the basic design of the meters. The oldest Trident can be modernized with new, improved Trident parts. Rebuilt or brand-new, Trident is still the finest meter you can buy. Ask your neighbor . . . or ask the Neptune representative next time he calls.

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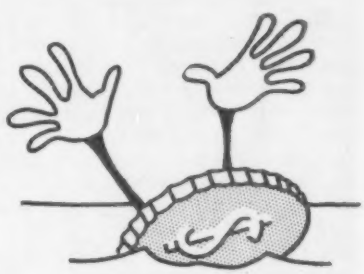
SEPTEMBER 1954 The American City

Soft Water Saves Hard Cash

Moorhead, Minn., softens part of the water twice as thoroughly and lowers operating costs

By JOSEPH E. YOUNG
Superintendent of Public Service
Moorhead, Minn.



ANY municipality that has to use what most of us consider a "hard" water—one containing a total hardness of 250 ppm (parts per million) or more—can find many benefits from investing in water-softening facilities. The rule has been, however, that while the community benefits, the water department faces boosted operating costs.

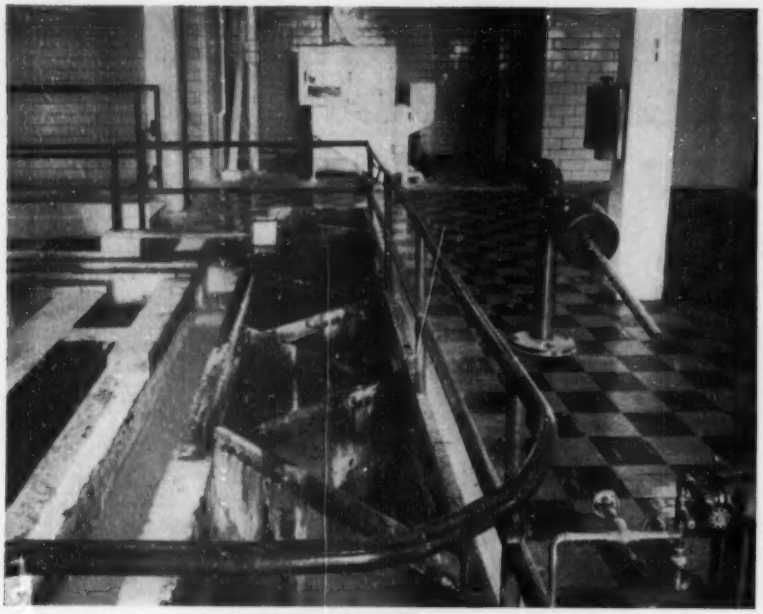
Moorhead, a city of 15,000 in western Minnesota, has proved the exception to this rule. Our out-of-the-pocket operating costs are lower today than they were before the improvement program started, despite current inflation and increased benefits that the plant brings to the community.

Water Shortage

Lower operating costs were not what we were aiming at when we began our water-improvement program. We were forced into the program for the usual reason—insufficient supply. We have to rely upon wells, and the aquifer that supplies these wells gave every evidence of depletion during 1946, when we began the project.

Softening, obviously, was only one point of our program. The larger improvements included a new 500,000-gallon elevated tank, erected by the Chicago Bridge and Iron Company. It also included the installation of 5 miles of 16-inch, cast-iron pipe extending to a new aquifer outside the city. The line uses U. S. Pipe and Foundry cement-lined pipe equipped with mechanical joints and

The two rectangular Precipitators (foreground) deliver a very clear water to the filters after one hour of detention.



A close-up of the mixing chamber and its horizontal baffles—where excess lime and Ferri-Floc are added—and raw-water controller. Note chemical feeder (foreground).

rubber gaskets. We also have five new wells tapping this aquifer and a new water-conditioning plant.

The actual work started late in 1947. The elevated tank, pipeline, and two of the wells were completed late in 1948. Our water-conditioning plant went into service in January 1951. The 16-inch feeder line and two additional wells were completed late last fall. At the wells, we have two 1,400-gpm Peerless pumps, one 2,100-gpm Fairbanks-Morse pump, one 2,100-gpm Fairbanks-Morse booster pump, and one 200-gpm Pomona.

Comparison of Wells

The new well field provides us with water that is much harder than the old supply, but it is clearer in color. The old wells produced water with a color index of 15, while our new water is measured at 5. After treatment, the color index of the finished water drops to only 3. The pH of the water from both wells is about the same, averaging 7.5. The treatment raises this to 8.8. Other characteristics of the raw and finished water are listed in Table I.

We made economies in the cost of our plant by building it to treat only the water from the new wells, reducing the hardness to a much lower figure than is provided by many conventional plants. The new plant holds the hardness in the clear well to less than 2 grains, or 34.4 ppm. By mixing this water with about 50% volume of water from the old wells, we get a finished water of less than 5 grains hardness, or 86 ppm, at a substantial reduction in cost.

The water-conditioning plant consists essentially of two rectangular Spaulding Precipitators with a total capacity of 3 mgd. It also includes a recarbonation basin, four filters, a laboratory, pipe gallery, and a high-lift pump room.

Water from the wells 5 miles distant enters the plant's mixing flume, which is equipped with horizontal baffles, where excess lime and Ferri-Floc are added. It flows almost immediately to the Precipitators where it is permitted to rise through the suspended sludge blanket which is typical of these basins. Water passing out of the Precipitators will average less than 5 ppm of suspended floc, although the detention period in the basin is only one hour.

Recarbonation

The water then flows to the recarbonation basin where it receives carbon dioxide from the flue gas of our heating plant. This corrects the effect of the excess lime necessary for treatment of our water. From there, the water proceeds to the filters and then to the clear well. The low turbidity of the water on the filters permits us to use less than 1% of the water for backwash purposes.

In the three years of the plant's operation, we have had very little difficulty from sand coating. Typical readings taken as the water passes through the plant are noted in Table II.

Because of the arrangement of the new facilities, it is much less work to operate the plant and the added wells than it was to operate the wells alone. The automatic controls have been the principal reason for this reduction.

Expenses, too, have diminished. The unit operating cost in January 1946 was 13.2 cents per 1,000 gallons sold; in January 1954, the cost was 12.0 cents, including the expense for softening.

Inasmuch as the volume sold has doubled and the average sale price of 24.2 cents per 1,000 gallons remains in effect, the increase of sales has

Table I—Characteristics of Raw and Finished Water

Water Properties	Parts Per Million		
	New Wells	Old Wells	Finished Water
Calcium	176	123	46
Magnesium	104	67	34
Sodium	161	325	220
Total Hardness	280	190	80
Alkalinty A (methyl orange)	303	261	122
Alkalinity B (phenolphthalein)	0	0	10
Free Carbon Dioxide	22	0	0
Iron	0.8	1.2	0.1
Silica	28.5	0	18.2
Turbidity	8	3	2

Table II—Water Readings at Various Stages of Treatment

	Raw Water	Leaving Precipitator	Leaving Recarbonation Basin	In Clear Well	Tap Water
Total Alkalinity, ppm	303	78	80	44	108
Versenate Hardness, ppm	280	72	68	32	78
pH	7.4	11.1	10.1	9.9	8.9

Table III—Benefits of Expansion Program

	January 1946	January 1954
Services	2,010	3,587
Water sold	227 mg	478 mg
Fire Insurance Rating	7	5
State Health Board Rating	54	85
Water hardness	12 grains	5 grains
Gross Assets	$501,274	$1,374,275
Bonded debt		$450,000
Net assets, depreciated	$345,524	$459,792

made available a considerably larger sum than was obtainable at the start of the program. As a result, even after bond and interest payments, more money is available for improvements at this time than was available in 1946.

Moorhead has grown and prospered since 1946. Because of the demand for extensions of water mains, the Water Commission initiated, three years ago, a service charge of $75 per average lot for water-main extensions so that these might be financed by current revenue.

That the expansion program has been comparatively extensive and the benefits accrued, aside from the reduced operating costs, are of considerable value may be concluded from the comparisons in Table III. The increased improvements and benefits were acquired from revenue which averaged $103,046 for the last eight years.

The public is also enjoying better water at a substantially lower cost. Many water users had been paying out sums of money that were much greater than the water bill as rent for water softeners used on their premises. This expense has been done away with for water users. For others, the softened water is bringing them not only convenience, but also the economy of less soap requirements, reduced plumbing bills, and less damage to laundered fabrics.

Because of the large increase in the volume of business and the comparatively small increase in unit operating costs, we were able to carry the entire program forward with no increase in rates to most of the customers. The only changes made were a boost in the minimum charges from 50 cents to $1 per month, and the new service charge for water extensions which have been discussed. These charges total about 10% of the revenue received.

The plant was only one phase of the program. Improved arrangements in pumping facilities, piping, lower head requirements in the delivery of water from the new wells, all cut the unit-pumping bill in half. Other changes helped to reduce costs sufficiently to pay for the softening.

A Little City "De-Salts" Its Water Works

Mayor W. L. Ward, Jr. (center), inspects his new water-treatment plant with Plant Superintendent Ben Brown (left), and Water and Sewer Manager S. S. Sanderson.

SALT on mashed potatoes, decided Mayor W. L. Ward, Jr., of Marianna, Ark., is one thing, but salt in the drinking water is something else entirely. The 5,000 inhabitants of Marianna had tried to get used to their odd-tasting water for 25 years, but finally the mayor and city council decided to invest $34,500 in a new supply and treatment plant.

The consulting firm of Max A. Mehburger, Little Rock, Ark., was assigned to the work. The first step was a search for new well sites. The Layne-Arkansas Company of Stuttgart was commissioned to drill at two sites in the city, and two outside. The test drills indicated that a salt-free water could be supplied by wells drawing from a relatively shallow stratum of 164 feet below the ground.

The engineers immediately drew plans and received bids for a new well able to supply 1,000 gpm and a pump rated at 500 gpm. The Layne-Arkansas Company was low bidder and supplied a Layne and Bowler deep-well turbine pump.

The supply of salt-free water, however, did not end the city's problem. Now the water had an excessive amount of hardness, iron, manganese, and carbon dioxide. Consequently, the consulting engineers prepared plans and specifications for a new softening plant, built around the lime-soda ash treatment and using Infilco equipment and a Wallace & Tiernan chlorinator.

In this treatment process, water first passes through a multicone aerator. Air drawn into the cone as the water passes over it combines with and precipitates most of the iron. The air also liberates a portion of the free carbon dioxide gas. The dose of lime and soda ash, applied as the water passes to the Accelator, removes both the calcium and magnesium carbonate hardness.

Because of the up-flow type of coagulation and sludge removal that the tank provides, the water goes to the filters with no more than 5 or 6 ppm of suspended floc that should be removed. The filters in the old plant, equipped with a Leopold underdrain system, handle this floc easily.

The water, as it passes to the filters, is recarbonated to lower the pH to an approximately neutral figure. The plant is equipped with a modern laboratory that has full facilities to run operating tests on the water.

Superintendent of Sewers John Brecka watches the receiver at the city hall to see "how it goes" at the pumping station.

Sewage Pump Station Gets a Radio Watchman

Hopkins, Minn., transforms a bank hold-up alarm into a foolproof pumping-station warning system

By WALTON R. L. TAYLOR
City Manager
Hopkins, Minn.

HOW would you like to ride herd on an unattended, problem-child, sanitary sewage lift station like ours? First, it has to handle, in one way or another, all the city's sewage. Secondly, if it stops even briefly, it dumps pollution into a famous water course that is the pride of our city.

Third, it is so inflexibly designed that it has to handle immediately all sewage that comes to it, sending it either up a 40-foot lift through a force main or over the picturesque Minnehaha Falls before amazed tourists from all parts of the world. And, finally, it is so compactly built that its basic design for "7,500 population in 1975" cannot be enlarged to our present population of 12,000 persons who require service.

In Hopkins, we do it by radio—not the voice-carrying types that cities normally use, but by a Raytectar radio transmitter and receiver that operates in the 450-megacycle industrial frequency band just recently allocated by the Federal Communications Commission for such uses. The radio system, adapted from a highly successful bank hold-up alarm, was especially designed for the Hopkins installation by Raytectar Inc., of Minneapolis.

Violent storms normally will bring us two problems: high-line power failures produced by high winds that knock down power lines; and rain-flooded streets that overflow into sanitary sewers and boost the station's pumping load. Telemetering by telephone company land lines normally would keep us in touch with these stations, but such lines usually go out with the power lines. Radio performs the same function without danger of interruption.

In our station, we connect relays with the power lines that serve each of the two 20-hp Fairbanks-Morse 240-volt, three-phase, induction motors at the operating floor. We also connect them with a 75-kva Electric Machinery 220-volt, three-phase standby generator, with the overflow point on a Healy-Ruff wet well float control, and with station wiring fed by either of the two power sources providing electricity to the station.

"Telltale" Light Panel

When any of these units is out of kilter, the associated relay actuates an encoder, a tone device which turns on the transmitter and imposes an audio note on the radio frequency emitted by the transmitter. A receiver detects the transmission on any of the five different audiotones, 4 miles away at the city hall which is a receiving station for messages.

A decoder changes the various audio tones into light signals which appear on a "telltale" light panel. A loud buzzer alarm then sounds in case the wet well is flooded, or if normal power is off and the standby source is operating, or if neither of the power lines nor the generator is operating.

A Bailey flow meter measures station inputs that will range from a low of 300 gallons to a maximum of 2,200 gallons per minute. The 10-foot-square wet well fills in only a few minutes at the maximum rate of flow, permitting the remainder to overflow into Minnehaha Creek. Raw sewage dumped into the stream at this point is scarcely a Chamber of Commerce talking point.

Thus, if the normal power fails, the 90-hp Minneapolis-Moline gasoline engine, connected to the Electric Machinery generator, goes immediately into action by means of its Synchro Start. The station's alarm system automatically radios to city hall that the power is off, so that the city's crews can notify the power company and proceed to the station and stand by until the emergency is over. If the crews aren't at the city hall, a dispatcher can summon them by radio-telephone using two-way, truck-installed equipment leased by

the city from the telephone company.

And if the overcrank, overheat, or low oil pressure cutouts on the gas engine operate to turn the generator off, the radio switches to a 6-volt battery and transmits a no-power-in-the station signal.

If the generator and its engine run normally, but the pump motors go off when the overheat devices in the Cutler-Hammer starters operate, the same no-power-in-the-station signal is transmitted. A standby 500-gpm gasoline-powered, trailer-mounted Contractors Machinery Company pump can then be towed to the scene to pump through a fire hose from the wet well to the next upstream manhole, which is 200 feet away and 40 feet uphill.

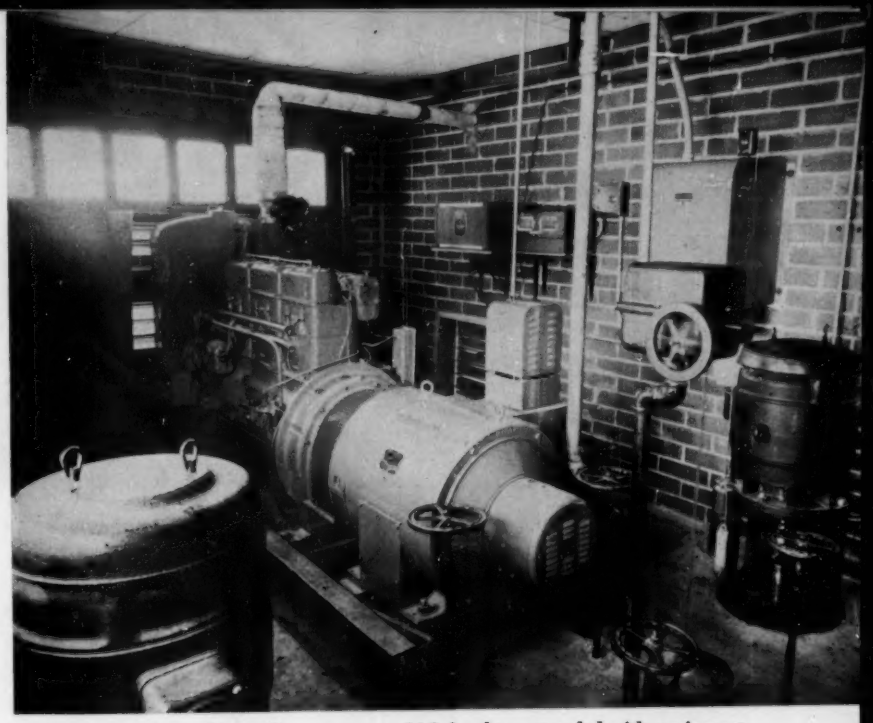
Originally Hold-Up Alarm

As mentioned previously, the Raytectar unit was originated as a bank hold-up alarm. The Hamel (Minn.) State Bank made the first installation, connecting with the Hennepin County sheriff's radio dispatcher. Its adaptation to the radio telemetering of sewer and water station work was not difficult.

Actually, the Hopkins master receiver can be operated with any number of remote transmitters; Hopkins plans nine more installations at five lift stations and four wells. The system will transmit, receive, and decode visible and audible signals simultaneously (nearly 1,300 separate items of intelligence), describing how remote installations are functioning.

The receiver can be expanded to handle radio transmission of bank hold-up alarms and warehouse burglary and fire alarms to the city hall. Private businesses in the city are allowed to install transmitters under a Raytectar-offered plan now under consideration by the city's two banks and several larger industries, working into the city's master receiver. Signals requiring either police or fire department attention can be handled easily by the city's dispatching personnel, who man the office where the receiver with its telltale light-and-buzzer board is located.

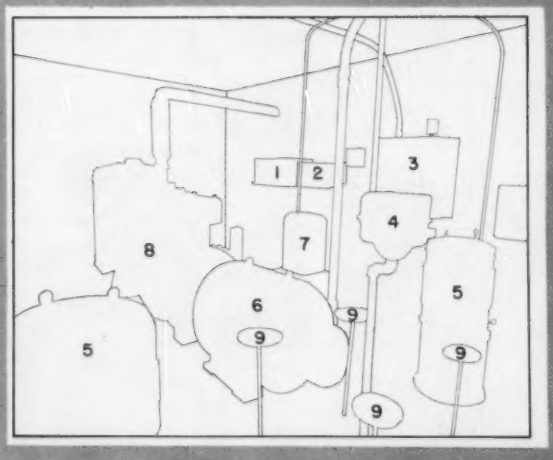
Hopkins is a suburb of St. Paul and Minneapolis. For a small city, it has a substantial number of industries. It is the home of the Minneapolis-Moline, Superior Separator, and Massey Harris companies in the farm-implement field. It is also the home of regional offices of various food concerns. Moreover, the largest ice-box in the Northwest, The Merchant's Refrigerator Company's cold-storage warehouse makes its home in Hopkins.

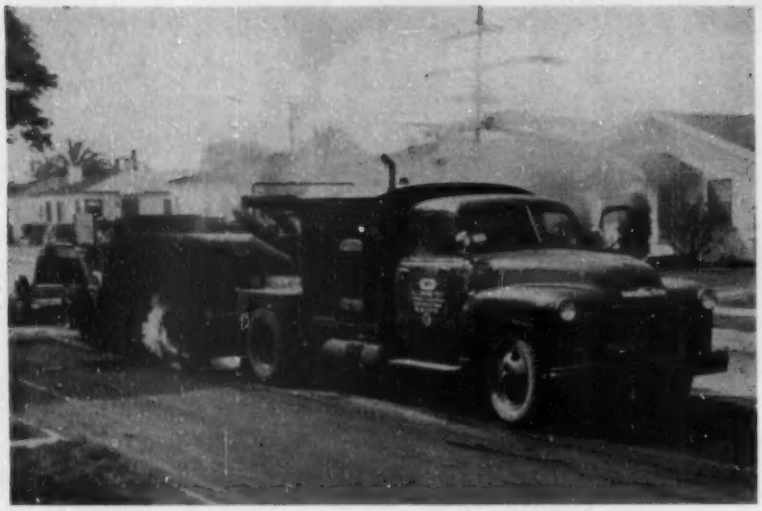


Little space remains in this small pump room which has been crowded with equipment. The Raytectar transmitter, encoder, and relays are mounted on the wall (background).

The drawing identifies the equipment units, pictured above, as follows:

1. Raytectar transmitter
2. Encoder and relays
3. Cutler-Hammer starter
4. Healy-Ruff float control
5. Fairbanks-Morse pumps
6. Electric Machinery generator
7. Synchro Start
8. Minneapolis-Moline engine
9. Valve handle





Heating and scarifying units team up to soften and level the city's old pavements.

High-Grade Surfacing For Low-Cost Pavement

Inglewood, Calif., develops a new method for stretching the street-maintenance budget

By W. E. KENNEDY, *Director of Public Works*
and
W. E. PEEBLES, *Assistant Director*
Inglewood, Calif.

IN RECENT months, we have seen several articles discussing low-cost pavement in THE AMERICAN CITY and other publications. None of the projects reported, we believe, can compare with the new type of low-cost surfacing that Inglewood has developed recently. We are a city of 46,185 people in southern California.

This method of resurfacing, however, like all others that we know of, must be supported by a strong subgrade and base. Should either of these fail, the surfacing, no matter how good, also will fail.

In the case of surface failures, such as raveling, cracking, or disintegration, our method permits us to correct, in one operation, a deteriorated surface that would otherwise have kept crews busy all summer with scores of ugly spot repairs. Actually, these surface repairs can be neglected temporarily with perfect safety.

The first step of the operation is one of preparation. The repair crew should remove the weeds from the cracks of the streets and along the gutter lines, either by hand or with the use of a blade. This procedure, followed by an application of weed killer to prevent regrowth, should occur a few days before resurfacing.

Priming, resurfacing, and rolling operations quickly follow the scarifying of the surface so that the department is able to open the street to traffic without delay.

Preparatory Steps

The crew should then make a cut about ½ inch deep in the surface beside the apron of the gutter to provide a better bond with the curb-and-gutter section. A blade grader can do this without difficulty. Usually, we find that both preparatory steps can be accomplished at the rate of about three blocks a day.

We then start our resurfacing in a four-step continuous operation: burning, scarifying, resurfacing, and rolling. Depending upon traffic conditions, we can resurface at the rate

of 60,000 to 80,000 square feet of street per day.

The burner operates at 2,200° F. to soften the old pavement to a depth of less than 1 inch. The scarifier is the feature that makes the work distinctive in Inglewood. It follows the burner immediately so that the surface is loosened and leveled in one step. The drag, approximately 9 feet wide, consists of a series of bars with 20-penny spikes placed at 2-inch centers that penetrate about ½ inch into the softened surface.

The drag will not scarify the surface completely, but will miss low spots. Nevertheless, we find that the burning revitalizes the existing pavement oil and the scarifying provides an excellent bond. The low spots also bond well with the help of a little thicker resurfacing layer. The scarifier was developed by our contractor, the G. J. Payne Company, of Los Angeles.

The Third Step

The third step of the procedure is immediate resurfacing. We apply a tack coat of SS-2 (Asphalt Institute specifications) at the rate of 0.10 of a gallon per square yard, and then immediately place an asphalt surfacing layer designed at 10 pounds per square foot to give us about 1 inch of thickness. A Barber-Greene paver is used to place all of our surfacing. At the proper temperature, the pavement is then rolled and the project is complete.

Specifications

Pavement specifications call for a ¾-inch maximum aggregate blended with an asphalt having a penetration capacity of 80 to 100, or 150 to 200, when surfacing heavy or moderate traffic streets. On secondary or lightly traveled streets, we sometimes use an SC-6 oil.

Specifications for the aggregate grading are as follows:

Sieve	*Per Cent Passing*
¾-inch	100
½-inch	95–100
No. 4	50–60
No. 8	40–50
No. 30	25–35
No. 100	12–20
No. 200	6–10

This method of resurfacing offers many advantages. Its cost is low. The preparatory work is easy. It is quickly completed; surfacing can begin in the morning and the street may be opened to traffic the same evening. The surface bonds excellently with the existing street, and the dense mix provides a splendid water-repellent surface.

This type of work, including burning, scarifying, and placing of the pavement material, is built by contract on a square-foot basis. The cost to the city is 4.5 cents per square foot. Our municipal forces raise the manholes after the necessary work is complete.

Author Kennedy (left) and Contractor Payne examine the scarifying unit developed by the latter's firm to provide the required bond between the old and new surfaces.

In the Chips

THE beautiful shade trees flanking the residential streets of Shaker Heights add dignity and charm to this northeastern Ohio city of 29,000, but have created a street-lighting problem. Street lights cannot function efficiently when the branches draw a curtain around the light they shed.

Shaker Heights has 30,000 trees in aisles between the sidewalk and curb. Trimming of the branches was not difficult, but transportation was inefficient, costly, and sometimes hazardous to the men. Moreover, the branches had to be burned in open dumps—an eternally unpopular measure with local residents.

Fortunately, Director of Service R. Rife found a solution to this problem in 1952. That summer, he equipped his crew with an Asplundh Chipper, able to macerate brush and limbs as large as 4 inches in diameter. Consequently, he was able to reduce his crew to two men: a truck driver and tree trimmer. The driver doubles as the chipper operator and is able to handle all the brush in a neat, safe manner.

The chips are used for mulching shrubbery and certain trees. They also are used to dry out muddy dumping areas. Almost any type of light truck can be used to receive the chips, Mr. Rife finds. However, in Shaker Heights he has used a truck with a high, van-type body that can serve as a platform for the trimmer.

Shaker Heights finds that it can load a tremendous amount of tree trimmings if the crew first sends them through the chipper. The brush chippings are used to mulch around shrubberies and trees.

By
W. M. SWIETLIK
Commissioner of Public Works
Milwaukee, Wis.

Three dumping stalls stand at the right of the ample-sized tipping floor. The truck scale is housed at the rear.

Water Sprays Give Milwaukee A Fly-Ash Free Incinerator

ON JUNE 23, 1952, Milwaukee broke ground for an incinerator designed to burn refuse at the rate of 300 tons per day in a manner that meets exacting air-pollution control standards. The Milwaukee County Smoke Regulation Ordinance specifies that flue gases discharged from any stack contain no more than 0.85 of a pound of dust per 1,000 pounds of flue gas, adjusted to 50% excess air.

This requirement is strict, even when applied to ordinary boilers burning a standard fuel of known characteristics. And it becomes even more demanding when applied to incinerators with their unpredictable conglomeration that constitutes today's refuse.

Nevertheless, at this date, this incinerator is complete and, for the past several months, has complied with these rigid requirements. The Milwaukee County Air Pollution engineers have run exhaustive tests to make certain that the dust load in the flue gases is well below the permissible limitation. Milwaukee's plant thus becomes living evidence that an incinerator can operate without producing a dust and fly-ash nuisance for its neighbors.

The plant, known as the Green Bay Avenue incinerator, moreover, adjoins a large park in a residential district. The pleasing appearance of the building with its buff-colored face brick, has drawn favorable comment from visitors.

This 300-ton plant contains two Nichols mechanically stoked furnaces, each having a rated capacity of 150 tons in 24 hours. The furnaces were designed to burn a mixture containing 50% garbage and 50% combustible refuse by weight with a maximum moisture content of 55%, without the use of auxiliary fuel.

The plant, located on a level site, is of the bin-and-crane type. On the same level is a large, enclosed tipping floor, ash-removal floor, boiler room, maintenance work room, and employee lunch room, locker, and wash room. A Fairbanks-Morse truck scale and facilities for washing the trucks are also located on this floor.

The furnaces are installed on the second or stoking-floor level. Here are also office space for the operating personnel and a rather large general office which is not in use at present, but is intended as a future headquarters for the Bureau of Garbage Collection and Disposal.

Dimensions of Refuse Storage Pit

The refuse storage pit measures 24 feet wide, 75 feet long, and 18 feet deep. It has been located so that its long center line coincides substantially with the center line of the two furnaces.

The storage pit has a capacity of 1,200 cubic yards. At present, between 200 and 250 tons are weighed into the plant each day, and about the same amount is burned in the two furnaces in a 16-hour burning period. A 3½-ton Harnischfeger overhead crane, able to span 22½ feet, transfers the refuse to the charging hoppers.

The crane has a 2-yard Blaw-Knox clamshell bucket. The charging hoppers have 5-foot-square openings directly above the tops of the furnaces; these are closed by Beaumont Birch motor-operated charging gates.

Each of the two Nichols Monohearth furnaces has a capacity of 1,850 cubic feet and an outside diameter of 16 feet. Each furnace is equipped with a mechanical stoking unit that consists of a perforated, cast, alloy-steel cone with stoking arms installed immediately above the grates and in the center of the furnace.

This assembly rotates slowly, constantly stirring the refuse as it is charged through the furnace at the top. Each furnace has a grate area of 140 square feet, including dumping grates, which are located around the periphery of the furnace. These are operated manually, dumping the ashes and other nonburnable materials into a conical ash hopper. The ashes are quenched with water and discharged by gravity through manually operated Beaumont Birch gates to trucks which are stationed below the hoppers.

Each furnace discharges its gases into a combustion chamber with a 10½-foot inside diameter and 31½-foot height. The gases pass from the two combustion chambers into a common breeching which leads directly to the chimney in the rear of the building.

Special equipment has been incorporated in this breeching that controls and eliminates the fly-ash from the gas stream in an ingenious manner. The breeching is 7 feet wide, 13½ feet high, and 31 feet long. It is lined with fire brick throughout in the usual manner, except that the reinforced-concrete floor is constructed like a V-shaped trough and is flooded with water to form a pond. This pond is kept at a constant level by the addition of a small quantity of make-up water. Much of the fly ash is trapped directly by contact with the water surface.

The breeching has a specially designed, adjustable baffle-plate assembly to trap and remove the fly ash.

Fly-Ash Removal

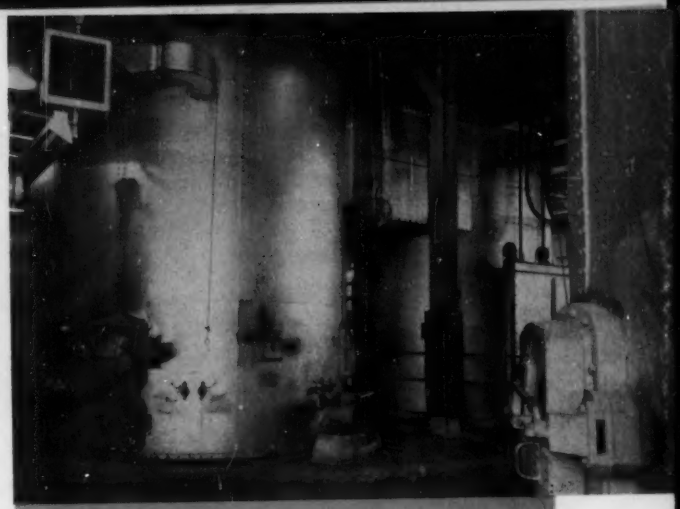
The fly ash deposited in the water pond is removed each morning by draining and flushing with high-pressure flushing nozzles, fixed in position below the surface of the water so that they are protected from the intense heat. The flushing operation takes about 10 minutes. The temperature of the water in the pond does not exceed 165° F. The quantity of fly ash removed each day after a 16-hour run of the two furnaces varies greatly but usually ranges between 50 and 100 cubic feet of semisolid material.

Undoubtedly the absence of odors around the plant can be attributed to our ventilation system. This was designed to produce slightly lower air pressure within the building than exists outside. We keep the building closed as much as possible, ventilating it with several large unit heaters installed on the tipping floor and over the refuse pit where it is drawn through openings into a duct on one side of the pit at floor level and also through openings in a duct that runs above the entire length of the crane runway.

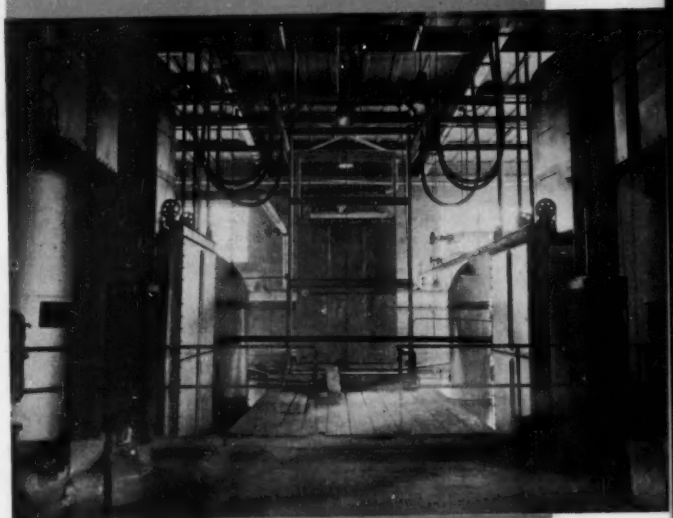
Both of these ducts are connected to a plenum that delivers the air to the mixing boxes. American Blower fans with a capacity of 15,000 cfm (cubic feet per minute) finally blow the air into the furnaces.

The ash tunnel is ventilated by two 3,000-cfm American Blower fans used for cooling the cones and stoking arms in the furnaces. In this way, all of the foul air is heated to the furnace temperature and is finally discharged through the 175-foot stack.

We found that the furnaces required about 11 pounds



The furnaces and combustion chambers are placed on the stoking floor. Note the over-fire duct at top of the furnace.



The specially built, adjustable fly-ash eliminator assembly lies beyond the temporary plank walls in the boiler room.

The receiving hopper charging gates are push-button controlled. The gates can be controlled from the stoking floor.

of air to burn a pound of refuse instead of the 7 pounds of the original calculations. Plans now are being made to install two more large unit heaters with fresh-air intakes.

The hot gases travel from the furnaces to the large circular combustion chamber and from here they are either discharged directly into the main breeching or diverted to Erie Iron Works waste-heat boilers.

The two 150-hp waste-heat boilers with auxiliary oil burners are an important part of this installation. Many doubt the wisdom of using them because of the high cost. However, where the street temperature often drops below zero, as it does in Milwaukee, we find them valuable. Without them, we would have to use at least 35 gallons of fuel oil per hour to heat the air drawn into the main building.

The estimated money saved in using waste gases instead of oil is $12,000 per year. Besides the savings in money, the boilers provide a means for cooling the gases, thus reducing the volume and lowering the velocity in the breeching, which tends to settle out more fly ash.

The incinerator plant has cost $903,000. Some steel catwalks still are required for the boiler room; some additional unit heaters are to be installed; and the site still must be landscaped. All this will bring the cost to an estimated $925,000. The incinerator equipment, including the waste-heat boilers, amounted to $257,000.

Since February 15 of this year, when the city officials assumed responsibility for the new incinerator, we have been operating at or near capacity on a 16-hour day, five days a week. Operating personnel during the day shift consists of 11 men: a foreman, crane operator, two furnace men, one charging-floor attendant, an ash-tunnel attendant, an ash-truck driver, a tipping-floor attendant, a truck washer, weigh clerk, and a janitor.

Since no trucks arrive when the evening crew is on duty, we do not have to maintain the tipping-floor attendant, truck washer, weigh clerk, or janitor. A boiler-room attendant, who also serves as watchman, is on duty 24 hours per day, seven days a week.

During the past several months, the new incinerator has clearly indicated that it has ample capacity to meet fully the manufacturer's ratings without strain or damage, and to operate without nuisance to residents who live nearby.

The plans and specifications were prepared and construction supervised by the architects and engineers of the Bureau of Bridges and Public Buildings which is one of the divisions of the Department of Public Works. Mr. George C. Ashton is superintendent, and Lawrence E. Heger is assistant superintendent and mechanical engineer. The operation of the plant is now the responsibility of the Bureau of Garbage Collection and Disposal of which Bernard Geisheker is superintendent.

The same organizations are now engaged in the design and construction of a second incinerator which should be in operation by next spring. Our program includes the construction of a third plant which will be designed after the operation of the second plant has been observed. When this third plant is complete, Milwaukee will have ample incinerator capacity for the disposal of all household and commercial garbage and combustible refuse.

Effluent For Irrigation

By F. L. ROCKWELL
City Engineer
Brownsville, Texas

Brownsville's new sewage-treatment plant under construction. The main features are visible except for the relift station that pumps effluent into the plant's outfall line.

THE fields of cotton and corn between Brownsville and the Rio Grande look remarkably good this year, far better than any in surrounding areas, all because of Brownsville's new sewage-treatment plant.

The plant, located about 1 mile from the Rio Grande, discharges its treated effluent through a 24-inch pipeline that crosses a number of farms. Because of the shortage of irrigation water that has affected this section of Texas recently, plant designers supplied gates and valves to the line at several points so that the farmers could intercept the effluent for irrigation.

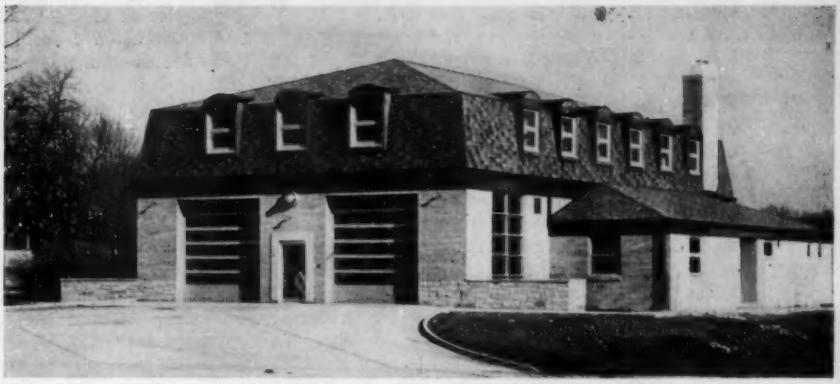
The new treatment works replaces an old, small, and obsolete plant, located uncomfortably close to a residential section near the center of the city. The new plant stands halfway between the city and the Rio Grande, and though it treats sewage contributed by about 40,000 persons, its design population is 75,000.

The plant features primary settling with secondary treatment provided by trickling filters. We have two primary basins, four trickling filters, two final sedimentation basins, two sludge digesters, and two sludge beds.

We also have a waste-gas burner to handle gas from the digesters. We use Dorr equipment on all portions of the plant except on the trickling filter which is equipped with American Well Works distributor arms.

The plant operates under the direction of James A. Wilson, superintendent, and is the responsibility of the author. The city recently received an award from the Texas Water and Sewage Works Association in recognition of its resourceful use of sewage-treatment plant effluent.

Attractive architecture proves again that good design should be an essential element in all municipal buildings



Erected to provide maximum efficiency and comfort at minimum cost, Station No. 5 incorporates several unusual features and amply meets Kenosha's firefighting needs.

Kenosha's New Fire Station

By RICHARD BYLER
Research Assistant, Executive Department
Kenosha, Wis.

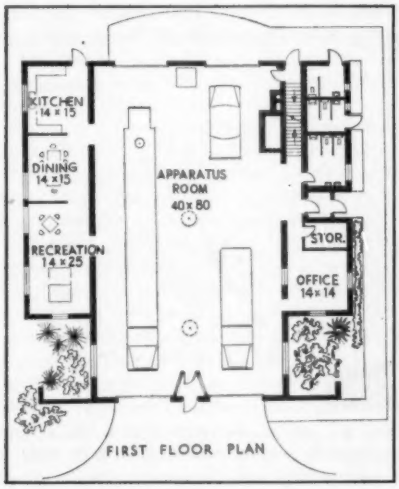
WHEN Kenosha (population 56,000) planned its first new fire station since 1923, City Manager R. H. Custer, Fire Chief William J. Brady, and Architects Lawrence Monberg and Associates, set about to demonstrate that it was possible to provide a tasteful blend of the best in both modern and traditional design, including unique features, and yet keep the cost below that of many other stations built elsewhere in recent years.

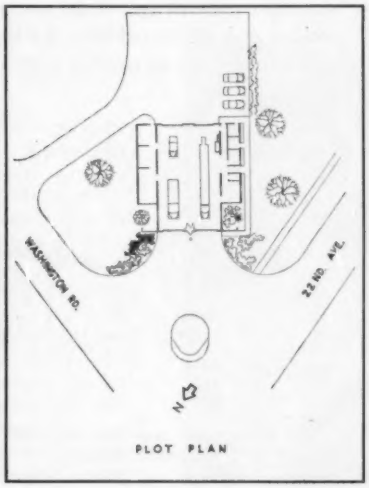
The result received an enthusiastic reception from local citizens, and at least one other city has announced plans to duplicate the new building as closely as possible. In addition to standard features of modern fire-station design, such as delayed timers on doors, glazed tiled walls, asphalt floor tiles, and automatic traffic-control lights, Station No. 5 includes several unique or unusual features that were suggested by Chief Brady and Assistant Chief Ted Smith from their long experience.

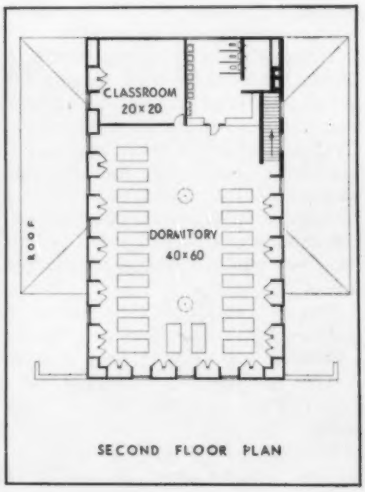
Two Special Features

Two special features permit apparatus to be operated inside the building for testing and training purposes. Carbon monoxide floor vents, which have long been used in auto repair shops but are not common in fire stations, carry off fumes so as to allow safe operation of apparatus with all doors closed. Pumps, as well as engines, can be operated by virtue of a 1,000-gallon concrete cistern installed in the basement to provide a continuous flow of water through the pumps.

A strategic crossroads location in one of the most beautiful of Kenosha's natural parks kept land costs low and provided ample land for setbacks and exits in two directions without crossing the busy intersection. Stop and Go lights controlled from within the station minimize







dangers and also permit a fast exit.

An entrance drive and overhead doors at the rear permit apparatus to return to the station without clumsy backing in or blocking of traffic. The drive is framed partly by one of two public tennis courts located immediately behind the building, which provide interest and recreational opportunity for firefighters stationed there. The firemen also serve as custodians of the courts and issue permits for their use by the public.

One-Story Design Rejected

Although the one-story design has been frequently used in modern fire stations, it was rejected in Kenosha to minimize encroachment on the park land and to provide a clear separation between the dormitory and first floor public areas. Sliding poles were also retained because of their undoubted greater speed and lack of any injury record.

The French provincial style of architecture, with its asbestos mansard roof, provides full headroom in the dormitory, and yet avoids the boxey appearance objectionable in fire station design. Exhaust fans in each of the 20 individual lockers provide fast cooling to the outside summer temperature and keep clothing ventilated. The second floor also provides space for Kenosha's first fireman-training classroom, while the full basement is available for hose dryers, storage, and possible use as an air-raid shelter.

Part of Long-Range Plan

The 40-foot by 80-foot apparatus floor provides space for a 100-foot aerial ladder, a 1,000-gpm pumper (both made locally by Peter Pirsch & Sons), and ample room for at least one more engine, should expansions and consolidations so require.

Although the National Board of Fire Underwriters first recommended an additional engine and ladder in the vicinity of the new stations in 1931 and again in 1937, financial restrictions, more urgent need for other improvements, war-time shortages, and an excellent fire department and fire loss record delayed action until postwar building further developed the area.

The new station is the first step in a long-range plan of relocation and consolidation to provide a ring of double and triple stations balanced between the high-value older central areas and the less-dense outlying areas. The older single stations would be consolidated under the new plan.

Following completion of the building, excellent cooperation from the press and radio aroused considerable interest in a three-day "open house," which was attended by an estimated 10,000 people, even though no formal program or ceremony was held.

Distinguished Visitor

Among the visitors was 87-year-old Peter Pirsch, local pioneer fire equipment inventor and manufacturer, and a former volunteer fireman before Kenosha adopted a full paid department in 1900. His reaction to the new station, as expressed to Fire Chief William Brady was, "Bill, I want to go to work again."

Kenosha officials believe that the new station provides the maximum in comfort and efficiency at a minimum cost. Total construction cost of the building was $133,000 or 92 cents per cubic foot. Furnishings and equipment, excluding apparatus, were $11,000 additional. The full tile walls and floors will keep maintenance costs at a minimum, and automatic controls on the heating units, actuated by the overhead doors, will preserve constant temperature.

A Bird in the Hand is Worth Two in the Bush!

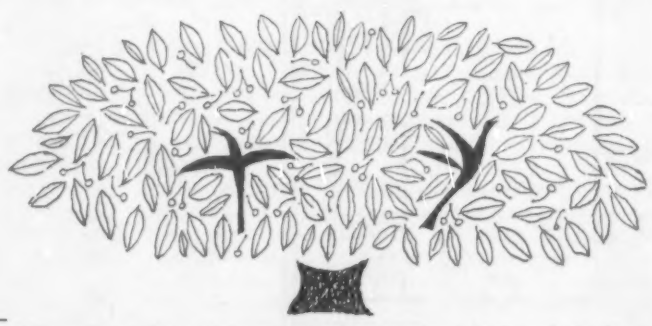
In 1953, Greenwich paid off almost the last of its bonded debt. We are nearing the end of the long road, laid out many years ago, toward a town free of the burden of bonds. In 1932, Greenwich owed $6,248,553. Interest on the debt, in that year alone, amounted to $235,261. But in 1934 the Pay As You Go Plan was inaugurated and the Town embarked on a course which has been faithfully followed ever since—modified to meet changing conditions, but in all essentials, the same.

Each year since that time our debt has been reduced. At the same time, the Board of Estimate and Taxation, the Representative Town Meeting and the department heads have cooperated to try to provide adequate services and needed improvements for this growing community. At the end of 1953, there was only $49,000 in bonds outstanding.

Where does *A Bird in the Hand* come in? $1000 in hand, spent for a public project, means that you get value received for every dollar spent.

And what about *Two in the Bush?* $1000 borrowed by bonding, and used for a project, means that another project could have been financed with the interest paid.

Birds in the Hand which have been financed without borrowing in the last 20 years include such projects as Greenwich Point with its fine sand beach and school construction totaling millions of dollars, as well as many, many other improvements. Altogether, between 1935 and 1953, the Town spent $13,222,020 for improvements out of current taxes. If bonds had been issued for these projects it is estimated that the interest cost, figured at 2½%, would have amounted to over $3 million dollars.



The above page, reprinted from the 1953 Annual Report of Greenwich, Conn., tells of that town's remarkable record of reducing its debt of over $6,000,000 in 1932 to $49,000 in 1953.

KETCHIKAN, ALASKA

By WILLIAM S. FOSTER
Engineering Editor
THE AMERICAN CITY

The City That Thrives on Obstacles

Alaska Series, II

KETCHIKAN, perched on the southernmost tip of Alaska's panhandle, is the proper first stop for anyone making his first visit to this great territory.

It is a city of contrasts; a city facing obstacles unmatched by any urban area in the United States. Yet it stands up to its problems and quietly conquers them in a way overwhelming to the visitor. It modestly makes no noise about its remarkable municipal achievements; however, it should.

Ketchikan has a moist, temperate climate. Average January temperature is 33° F.; July temperature, 58° F. It has a phenomenal amount of gentle, misty rain—over 150 inches per year—that its inhabitants simply ignore. Its average winter snowfall is 35 inches, but the snow melts quickly. If you are a summer visitor, odds are that City Manager Victor Guns will greet you wearing a sport shirt of the California or Florida type.

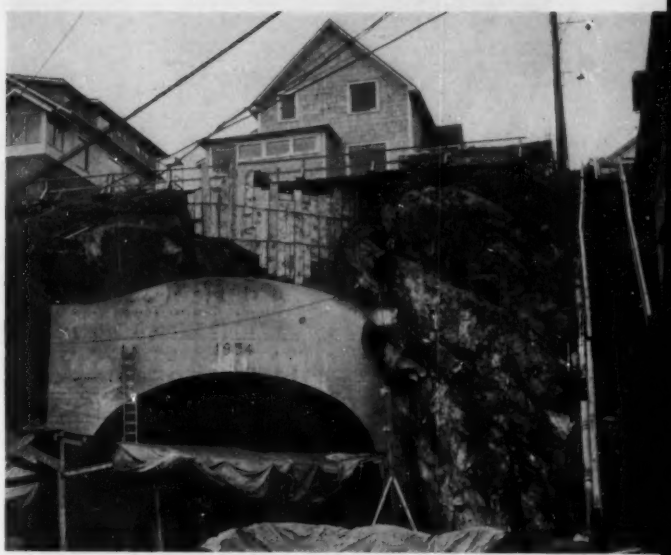
Ketchikan has neither railroad facilities nor highway connections to the mainland. To reach it by air, it is necessary to land at neighboring Annette Island, from which one is ferried across to Ketchikan by a Grumman amphibious plane.

Limited Shipping Facilities

The city has direct shipping facilities only by steamship, and even these are limited during winter. Although it lies less than 90 miles from the Canadian port of Prince Rupert, restrictive federal legislation blocks Ketchikan's use of this neighboring port for importation of goods, forcing goods designated for the territory to originate at a stateside port, and so be detoured a minimum of 700 miles.

Ketchikan's population approximates 12,500 persons in the city and environs. For years, the city has served as the salmon-packing capital of the world and as headquarters of the territory's southeastern fishing fleet. It also boasts a lumber mill. But most important, it has become the home of a tremendously large pulp mill, valued at $50,000,000.

Designed for year-round operation, this plant employs 300 men, as well as some 700 loggers. It uses what is reported to be an advanced method of pulp manufacture: reclaims impurities from the stack gases, rendering them inoffensive, and discharges relatively pollution-free industrial waste. Undoubtedly, this plant represents the greatest single industrial advance for any Alaskan city in recent years, and points toward other similar developments in the timber-rich coastal areas.



What other city can boast of a tunnel as part of its main business district? Note the permanently exposed sewer line.

Logging operations are designed to use only those trees that a normal growth will replace. The danger of forest fires in Ketchikan's 150-inch rainfall areas is nonexistent. As the plant is set up, it will operate so long as there is a demand for its products. The resources, if unabused, will be there forever.

The city's municipal government operates along ma-

Ketchikan learned a long time ago to fit its streets to the land contour. Even then it finds this a difficult problem.

Gradually, the city is replacing wood trestles with concrete retaining walls which offer more permanent construction.

ture, responsible, unselfish lines. It is based on the city-manager plan, and a professionally trained manager is employed. Its city engineer also is a professional and life-long resident of Alaska.

Ketchikan owns and operates the electric, telephone, and water utilities, management of which it turned over to a separate Board of Public Utilities, with J. M. Weir as manager. This rather large-scale public utility operation reflects the independent spirit of this little city that wants this service but finds that private capital is unwilling to supply it.

Ketchikan's street system must be classed as one of the municipal wonders of all United States cities. The mountains crowd the city against the shore, forcing it to build winding narrow streets, supported on timber trestles. Ketchikan is the only city in the United States that requires its city engineer to be a carpenter.

The city is 2 miles long and has an average width of 1,700 feet. Street grades of 15% are not unusual; the steepest crawls up the face of the mountain at a breathtaking 22%. Probably more publicly maintained stairways per capita are to be found here than in any other city in the country.

Streets scarcely meet stateside standards, and except for those in the downtown area, they are unsurfaced rock base. However, in this area where the fine, misty rain continually settles the dust and where traffic travels slowly, they easily meet demands. There are probably 20 miles of roads outside the city for auto travel. Altogether, the Ketchikan area has less than 50 miles of roads and streets, and that must serve 3,000 cars.

Water and Sewer Service

Water supply and sewer service offer challenging problems. The soil is either an acid muskeg or bed rock. Both water and sewer pipe lay virtually exposed. For both the sewers and the services the city prefers Armco absestos-bonded pipe. Its long length permits bridging over difficult spots, and its strength permits it to withstand differential settling.

For the present, and probably for many years to come, this little city will be able to discharge untreated sewage into the ocean. The present standards require that the outfall go to a point 4 feet below the low-tide level.

For its water supply, the city simply taps two upland mountain lakes that are constantly replenished by the heavy rainfall. Their location is such that no pumping is required. Wood-stave pipe, wound with a Bethanized wire and protected with coal tar, is used for distribution. Utilities Manager J. M. Weir has records to show an average expected pipe life of 20 to 30 years. He has found that the corrosive condition of the water and the soil, plus the difficult pipelaying conditions, makes the use of other pipe inadvisable.

The Water System

The water system is, at present, unmetered. With an abundant supply, no pumping costs, no treatment costs, and ample-sized mains, Ketchikan has had no particular reason to use any but a flat rate. However, wintertime use of water often becomes excessive because people permit taps to run all night to keep the exposed plumbing from freezing and, occasionally, despite the abundant supply of water that nature provides for the area, the city runs low on water as this system becomes widespread. Because the city has neither meters for its services nor master meters in its water plant, there is no reliable means of judging how much water flows from the mountain lakes through the mains into the ocean.

Water receives no treatment at all, but this year the Board of Public Utilities plans to install a chlorination station as a protective measure.

Municipal Utilities

As previously mentioned, Ketchikan, through its Board of Public Utilities, owns and operates its electric plant and telephone system. Recently, the Board installed dial service for the telephone utility, using Stromberg-Carlson X-Y switch equipment.

Two generating stations supply the city with electricity; both use the more than ample supply of hydroelectric power. One station, located in the city itself, is rated at 4,000 kw. It houses two Pelton and two S. Morgan Smith turbines, and, in addition, for standby purposes, has three Caterpillar diesel-electric, generator sets able to supply 942 kw.

The second plant, located 12 miles from the city, has been rated at 2,400 kw. It houses old turbines purchased during the war from Seattle where they were used in that city's first hydroelectric development. Expansion of the second plant, however, is underway, and entails not only the installation of two new S. Morgan Smith turbines, each rated at 2,000 kw, but also the enlargement of the dam at this point to store a greater amount of water.

The city finances itself through real estate and personal property taxes amounting to 2% of assessed valuation. Also, the city has levied a 2% sales tax that raises approximately $80,000 per quarter to retire bonds issued to finance its share of the Alaska Public Works program. This program calls for a 50% participation by the city in any approved program, and an equal one by the federal government.

The city's most spectacular project under this program is a waterfront arterial improvement costing

nearly $2,000,000. This project is 1,200 feet long, and extends the length of the business district. It includes a 275-foot tunnel with a 22-foot roadway and a 6-foot walkway, as well as a sea wall composed of precast concrete stop logs supported on a masonry pier.

The tunnel will provide one-way traffic, permitting the old roadway to supply one-way travel in the other direction. For the rest of the way, the artery will provide a 60-foot trafficway with a 6-foot sidewalk on one side and a 4-foot walk on the other.

Under this same program, the city is building a $2,000,000 high school. This beautifully designed structure will be unusual to most in its use of Fenestra steel paneling throughout, reducing to a minimum the use of brick or concrete masonry with their attendant high labor costs.

Police and Fire Service

Ketchikan maintains a 12-man police force, with three men assigned to each shift. It has a 20-man volunteer fire department supplemented by two men on a paid basis. It has four trucks: two 550-gpm Seagraves, one 750-gpm FWD, and one 500-gpm Ford. It also has a Jeep-equipped fire truck with an American Marsh 350-gpm pump, supplied for civil defense purposes. This truck is used to answer calls outside the city limits, since territorial law prohibits the use of city-owned trucks anywhere except within the city.

The city has one fire boat, and has recently acquired another boat. This new unit is 65 feet in length, capable of 11 knots, and is equipped with a Superior diesel engine. It has a 1,000-gpm pump powered by a Buda diesel.

These fire boats provide protection for the substantial number of year-round houseboats that the city has, and for its large fishing fleet. They also protect the city-maintained mooring facilities for more than 500 commercial and pleasure craft. These moorings are maintained without charge.

Refuse disposal is also a city function. A crew of five men, using a Gar Wood Load-Packer on a Ford 2-ton chassis, and a Heil body on a Ford cab-over-engine chassis, make daily pick-ups from the business houses and weekly pick-ups from residential areas. The miles of stairways present an unusual occupational hazard for this crew while carrying collection receptacles.

Garbage is disposed of on a tideland area by burning. As in sewage disposal, the city takes advantage of the 25-foot tide provided by nature to clear the harbor twice a day. City officials are, however, applying for matching federal funds under the Alaska Public Works program to install a modern incinerator, which would provide a more sanitary method of refuse disposal.

The Future

Ketchikan, Alaska's southernmost municipality, is in the process of being discovered. Already revealed is its remarkably mild climate; its potentially abundant supply of those vital natural resources: water and hydroelectric power; its fine port and active fishing industry; and its tremendous resources in timber.

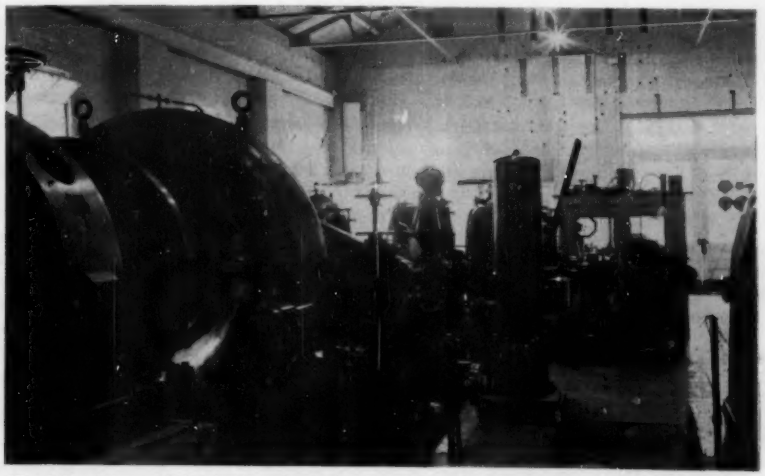
Its limitations have been uncovered, too. It has a rugged terrain, bedrock close to the surface, an unproductive acid soil, and a shortage of good aggregate for concrete construction. Other than by steamship, it has difficulties with transportation. Its high labor costs have been aggravated greatly by military construction elsewhere in Alaska.

However, the advantages of the area and the enterprise of the people are overcoming the obstacles. The big $50,000,000 pulp mill beats the transportation problem by barging railway cars to Prince Rupert, Canada, the terminal of the Canadian National Railway, so that box cars, for the first time, now find themselves in Ketchikan. (Federal law permits exports from the territory to Prince Rupert.) Two new 250-family apartment houses are available for occupancy in Ketchikan and new home sites are being cleared near the pulp mill.

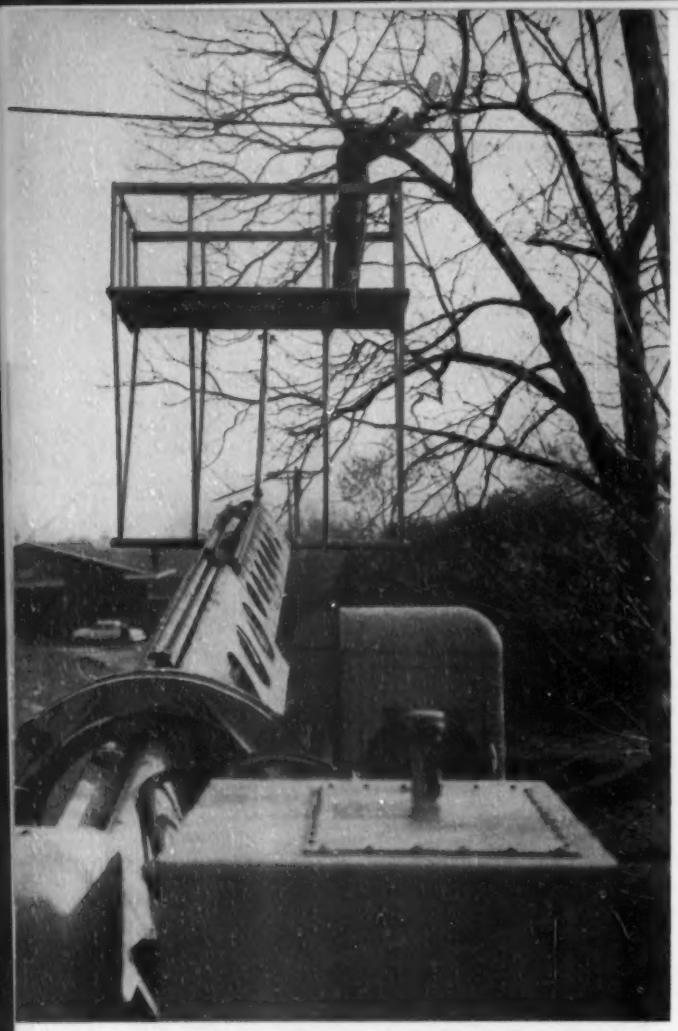
The city's budget now has an annual appropriation set aside for new equipment, amounting to $20,000. The old wood trestle streets are gradually disappearing, being replaced by more sturdy concrete retaining walls and more easily maintained rock fill. An all-out street-surfacing program appears inescapable. And some day water meters, particularly for industrial accounts, will make their appearance. The proposed incinerator is certainly commendable.

Ketchikan, with its distinctive characteristics and unusual local conditions, presents a refreshing challenge to municipal planning. It is a city worthy of study and discussion by any municipal engineering group, whether that group meets in Seattle, New Orleans, or Boston.

Three standby Caterpillar diesel-engine generators are ready to go into action.



Ketchikan's annual 150 inches of rain becomes kilowatts in the two municipally owned hydroelectric plants, one of which is currently being provided with two new turbines.



Fabricated from welded steel pipe, the platform attachment to the Gradall's telescoping boom, can be used for tree trimming and other city maintenance jobs which require elevation.

A Public Works Department Work Horse

A township gives unusual multiple duties to one all-purpose machine

By ANTHONY MARA
Superintendent of Public Works
Parsippany-Troy Hills Township, N. J.

FOR the past two years, we have literally and figuratively "run the wheels off" our Warner & Swasey Gradall. We have operated it around the clock and around the calendar, but this multipurpose earthmoving and construction machine has never failed us. Instead, its remarkable record as utility equipment has created new efficiency and economy standards on a wide variety of municipal maintenance duties.

Parsippany-Troy Hills has a 122-mile road system in New Jersey. With the township's vigorous activity in residential construction, the public works department is kept "hopping" to maintain this road network in the suitable condition required by increased traffic demands.

The machine has earned the title, "the public works department's work horse," and with good reason. Since April 1952, when it was purchased, the Gradall has turned in over 3,000 hours of operation.

Diversified Applications

In addition to performing such routine chores as ditch cleaning, trenching, material handling, road widening, pavement ripping and removal among others, the unit has a number of other unusual applications.

We have fabricated from steel pipes a specially devised wood-floored platform that is mounted on the end of the Gradall's telescoping, hydraulically controlled boom. The platform, which is kept level with the unit's tool actuator cylinder, has enabled us to trim tree branches that extend over the streets, to replace bulbs in street lights, to do maintenance around utility wires, or any other tasks that require as much as 28 feet of elevation. The machine, in effect, has acted as a self-powered mobile elevator. Last December, the unit performed a unique function in participating in the decoration of our township's giant Christmas tree.

Making Taps for New Homes

Another interesting innovation is the function which the machine is now performing in making taps for new homes without breaking up the pavement on the opposite side of the street. First, the machine digs a small hole in the street to uncover the main water line, then moves off the street to the utility trench leading to the house. Next, a special attachment with an air hammer is installed at the end of the boom. A laborer positions a piece of steel pipe so that it may be driven by the air hammer under the street to the main pipe. Copper pipe leading to the house is then pushed through the steel pipe and is connected to the main line.

This job used to take a day, often two. Now we usual-

ly make a tap in an hour or an hour and a half. There are no trenches to fill or patch with asphalt—a positive saving of time and labor.

Job records show that the Gradall has never spent a day in the garage for major maintenance since its delivery. Consequently, the unit is able to perform in all kinds of weather.

Various special attachments have adapted the machine to specific uses. For example, in the winter, we attach a V-plow to the front of the machine, put a large-sized snow bucket on the boom, and use it for snow clearance. Equipped in this way, the machine often comes to the rescue of the other township equipment marooned by snow.

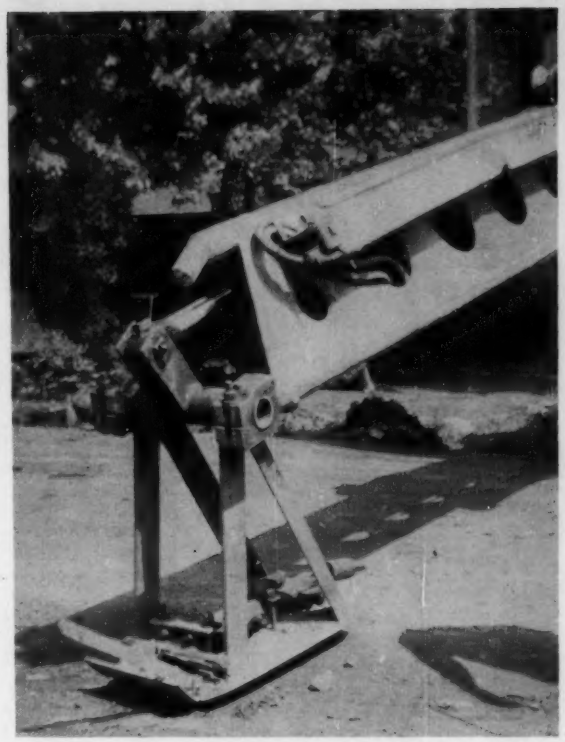
Still another interesting construction job expedited by the unit was the dredging of Lake Hiawatha last year. The lake was shallow in one spot and was filling up with muck. By extending mats from the shore along the lake bottom, the Gradall went 35 feet out into the lake and dredged many cubic yards of muck. At another location along the lake, the machine was used to build a rock pier for diverting water flow.

Repair of Fire Hydrants

Repair of fire hydrants damaged through traffic accidents is facilitated by the Gradall, also. These accidents often happen at night. Two years ago, we would come to the scene of an accident in the middle of the night and work until morning to replace the wrecked hydrant so that the homeowners in the affected area would have water for use in the morning. However, with the Gradall, we are able to do the same job in one-tenth the time. Last month, for example, we left the shop on such an errand at 5:30 p.m. and were back by 6:00 p.m.

Other Applications

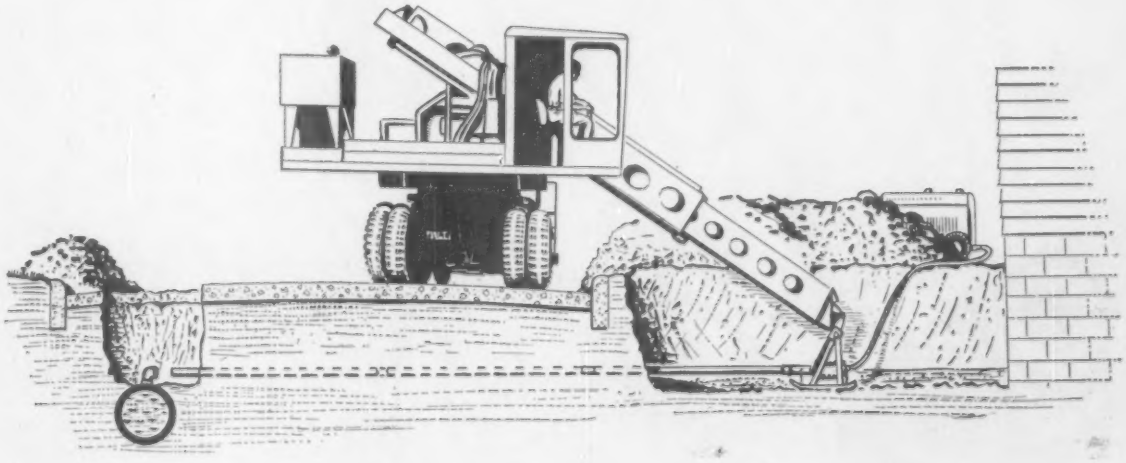
Other applications show how the machine is netting worthwhile economies for the township. As an example, a tree-removal job would have cost $150 per tree by usual methods. The Gradall handled it for $40. Unloading of pipes, water valves, and other heavy material from delivery trucks, previously an all-day manual chore, is now handled by the new unit in two hours.



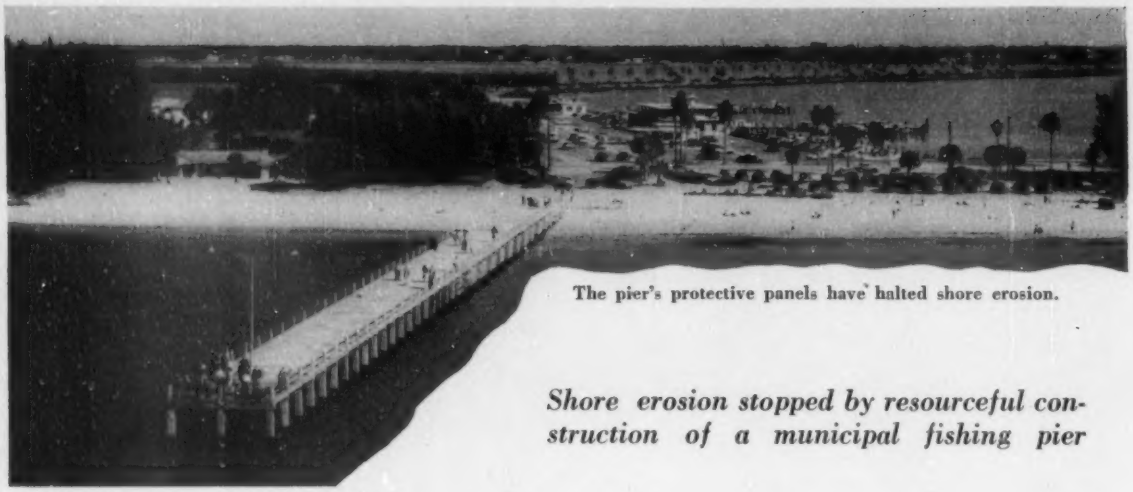
Close-up of the special attachment equipped with air hammer.

Recently, a well digger bid $500 to make several tests to determine the depth allowable for digging before encountering rock. Job time was estimated at a minimum of two weeks. We assigned the Gradall. Using the pile-driver attachment, the operator drove pipe down to test for rock and completed the job in one day.

The two-year performance record that the machine has marked up is indeed proof that this unit has an invaluable place in our public works department.



System used for making water taps to new homes without breaking the pavement on the opposite side of the street.



The pier's protective panels have halted shore erosion.

Shore erosion stopped by resourceful construction of a municipal fishing pier

The Beach and Fishing are Better

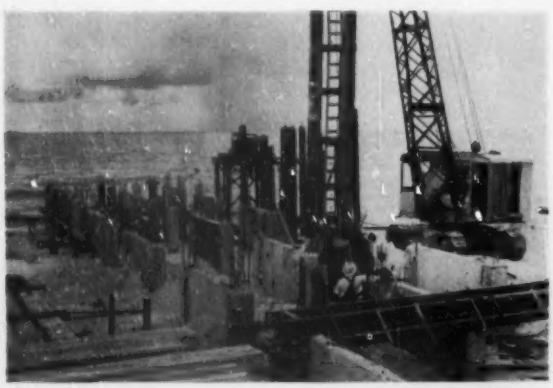
By F. C. MIDDLETON, *City Manager, Clearwater, Fla.*

IN Clearwater, a Florida coastal city of 16,000, the beach no longer washes away and shore-front buildings no longer tumble into the Gulf of Mexico as a result of the new 500-foot municipal pier, from which fishermen now test their piscatorial skill.

The pier is located at Clearwater Beach Island at a point where erosion had cut 100 feet from the shore line. However, the erection of the pier has not only successfully halted erosion and restored the original beach but, in some spots, has increased the beach line.

The pier is 21 feet wide and juts into the surf from a 6-inch-thick, cast-in-place retaining wall at the end of a 50-foot concrete approach. Three longitudinal rows of 16-inch-square, 30-foot long, precast, reinforced-concrete piles are spaced on 10-foot centers along the pier. The piles are slotted to receive 8-inch-thick, precast-concrete panels which break the waves and current and thus reduce erosive action.

These panels, approximately 9 feet wide and 14 feet long, are placed in alternate bays between piles in each of the three longitudinal rows for the first 300 feet of the pier length. Precast-concrete deck slabs and handrail posts, and cast-in-place beams and curbs complete the structure.



The precast piles were driven to refusal and cut to elevation. The panels were then jetted down between the piles.

Precasting Procedure

Precasting of structural elements was performed on the site at a casting yard set up by blocking off the dead-end section of the roadway leading to the pier. This area was readily serviced by transit-mix trucks which delivered air-entrained concrete directly to the forms. All precast units were kept moist for a five-day curing period and were then stacked until ready for use.

The piles, sheet piles (panels), and handrail posts were trowel-finished, and the deck slabs were broom-finished to provide a nonslip surface. The handrail posts measure 8 inches square and 3½ feet high. Deck slabs are about 10 feet long and 5 feet wide and are apportioned in groups of four slabs for each longitudinal bay.

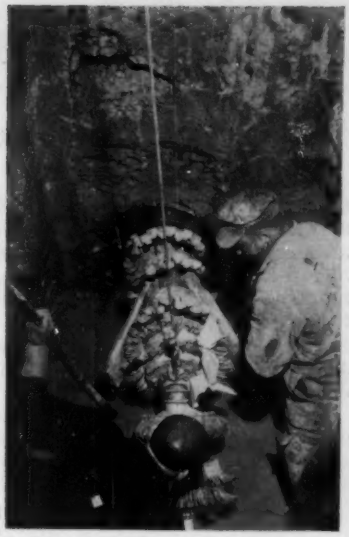
All piling was driven to refusal and cut to the required elevation. Steel from the cut tops remained exposed and was later bent into the cast-in-place beams. Panels were jetted in place to the required elevation. Their end dowels were bent and cast into the beams along with the exposed steel of the pile tops.

We made the ready-mixed concrete in proportions that required seven bags of portland cement, 1,090 pounds of sand, and 1,780 pounds of coarse aggregate per cubic yard. The water-cement ratio was 5¼ gallons of water per sack of cement. An air-entraining agent was added to give the concrete an air content of 4½%. On the job, air content was held to values ranging between 3% and 6%. The entrained air helps to make the concrete more resistant to weathering caused by the salt spray.

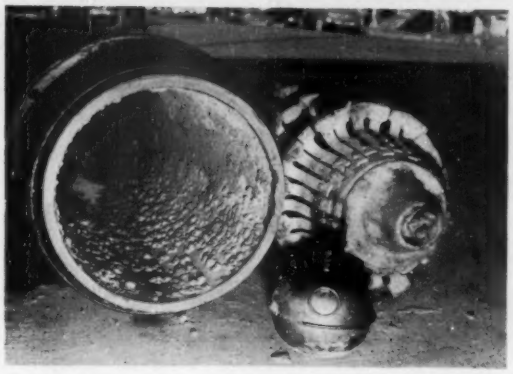
Burton Walker Construction Company, of Plant City, Fla., was the contractor. Sidney Lickton, city engineer for Clearwater, served as engineer and supervisor of the project.

New Pep for Tired Water Mains

Kansas City, Mo., revitalizes the oldest portion of its water system at low cost by a cleaning and lining program



This bristly-looking "go-devil" first removed flow-throttling layer of calcium carbonate from pipe.



Before the main was cleaned and lined, it was sufficiently incrusted to seriously impede the flow of water.

WATER supply in Kansas City's (Mo.) business district is on the road to greater volumes at higher pressures through old and, what some may consider, undersized mains. The city is getting these stepped-up flow characteristics by means of a new cleaning and lining program. The mains that are being rehabilitated date back to 1890 and 1910, in most cases. The lines are chiefly 16-inch, although two are 42-inch, steel mains installed in 1926.

Flow through these pipes has been impeded by incrustations of calcium carbonate deposited prior to the construction of the city's water-softening plant in 1942.

On the basis of tests and distribution-system studies made some 10 years ago, the "C" value in the Hazen-Williams formula for these mains was in the 70 to 80 range. The cleaning and relining work will improve these flow characteristics by at least 50%, thus making it possible to supply the water needed by the area without construction of new lines.

The cleaning and relining is being done by contract with the Centriline Company which, in turn, has retained the National Water Main Cleaning Company to do the cleaning. Both are New York companies.

The lining was made possible by the use of Centriline's special lining equipment developed for use in pipe of 16-inch diameter. In years past, this size has occupied an uncomfortable "no-man's-land" status; it was too large to be lined by the Tate method and too small to be lined by Centriline's revolving floats.

Kansas City's program embraces 9.3 miles of pipe. The costs run to $230,000, or roughly $4.69 per lineal foot. The work is under the general direction of M. P. Hatcher, director of water, and the immediate supervision of James B. Ramsey, chief engineer and superintendent.

(Left) The main is then lined by a specially designed mortar applicator that is able to work in a 16-inch-diameter pipe. (Right) The cleaned and lined pipe, smooth enough for easy flow and ready to give trouble-free service for a long time. (Note: The pop bottle serves as a handy indication of the pipe size and was not required for pipe cleaning or lining.

Subdivision Redesign Pays Off in Los Angeles

City's design experts provide savings to taxpayers and developers

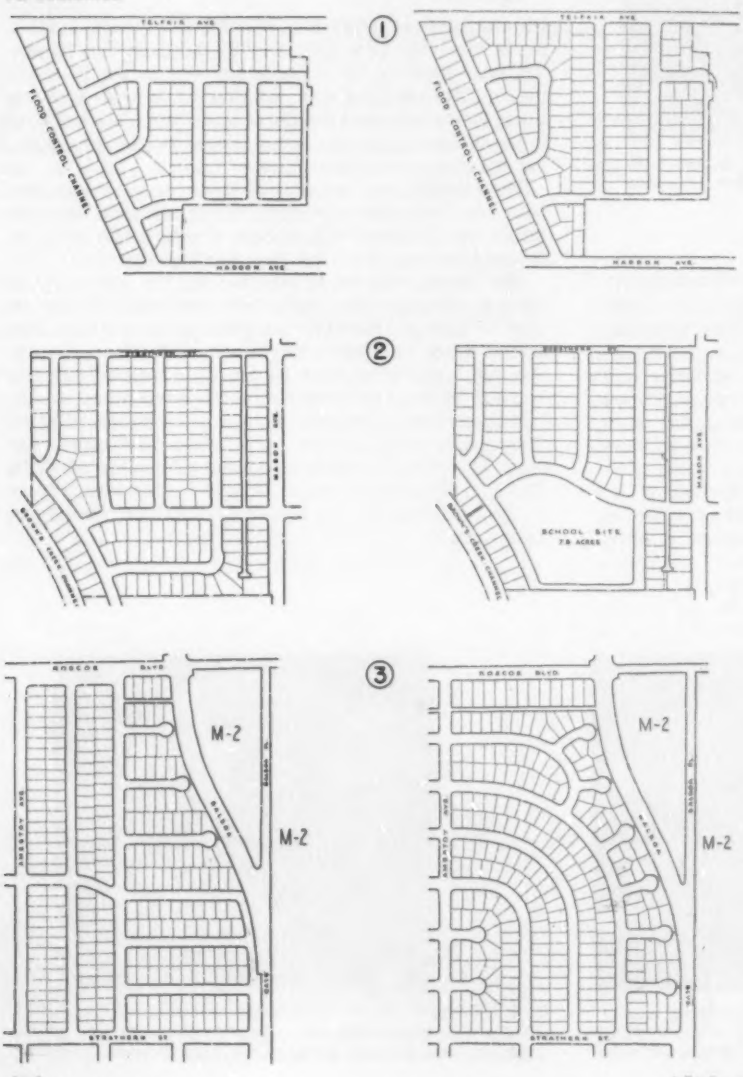
SUBDIVIDERS and taxpayers in Los Angeles, Calif., are finding that expert subdivision design pays off in dollars and cents savings to both developers and city. In two of the examples shown below, direct savings of $16,000 and $18,000 to subdividers and substantial future maintenance savings to the city resulted from plat revisions devised by layout experts of the Los Angeles City Planning Commission before final Commission approval was given.

Under the city's regulations all subdivisions must be given first a tentative and then a final approval before actual construction work can begin. Changes in layouts are required when the staff finds that the plans as presented for approval do not meet good subdivision standards or do not conform with provisions of the Los Angeles city plan.

In some cases, changes are suggested when the staff's layout experts believe that a more efficient or attractive design can be created. The changes are requested after the subdivider has submitted his tentative plan and before he makes his major planning expenditures for a detailed survey plat for final Commission approval.

The following are some examples of the revisions that were made in subdivisions submitted to the Los Angeles City Planning Commission during 1953. Over 519 tentative plats were turned in that year.

As Submitted | **As Redesigned**



Benefits Achieved in New Design

1. Devising of a more practical and economical tract resulted in the reduction of 300 lineal feet of street and in the creation of 4 additional lots.

——Subdivider benefited through more lots and fewer street improvements; the city gained by having more land placed on the tax rolls and less street required to be maintained.

——Estimated Savings:

300 lineal feet of street improvements	$ 6,000
4 additional lots at $2,500 each	10,000
Total Gain	$16,000

2. Provision of elementary school site as requested by the Board of Education in accordance with the recommendations of the Master Plan of Schools.

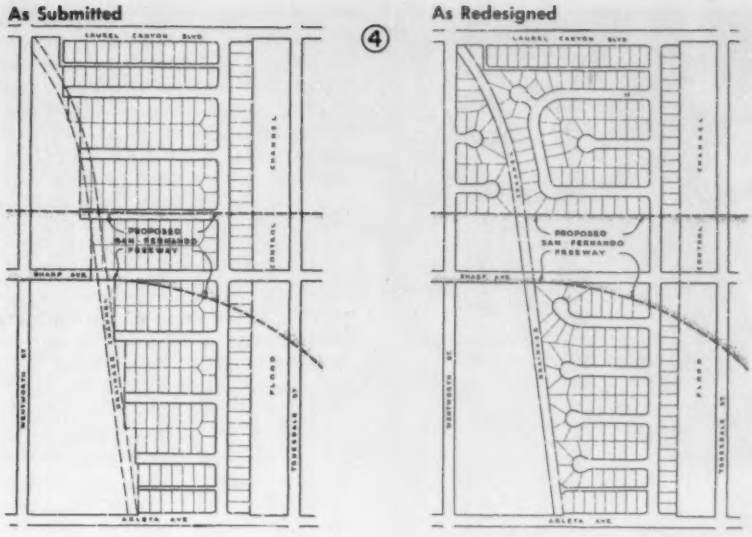
——Substantial savings in school site acquisition by enabling Board of Education to acquire site as raw acreage before improvement.

3. Elimination of the objectionable short sections of service roadways, and adoption of uniform treatment of frontage along Roscoe and Balboa Boulevards.

——More pleasing design by introducing curved streets in place of gridiron layout.

——Reduction in amount of street by approximately 900 lineal feet resulting in an estimated savings of $18,000 to the subdivider.

——Better lot design reflected in greater lot width and areas.



Benefits Achieved in New Design

4. Provision for new freeway route.
——Revision of street pattern to take into consideration major drainage course along westerly line of tract.

Rephrasing of Zoning Ordinances In the Light of Court Decisions

By J. OAKEY McKNIGHT *

MANY provisions of zoning ordinances require rephrasing from time to time to keep up to date with the latest judicial interpretations of zoning standards. Since foresight is far better than hindsight, municipal authorities should amend their zoning ordinances as conditions require rather than wait until an attack is made upon the ordinance or until an inappropriate use permitted by the ordinance becomes so common that it cannot be remedied.

In my experience I have found that in many ordinances words have been so used as to produce a legal effect contrary to that intended by the enacting legislative body.

For example, the Courts have construed the word "family" to include a sorority or fraternity building occupied by its members living together as a single housekeeping unit. In communities that have wanted to exclude such sororities and fraternities from residence districts, it has become necessary to rephrase the wording of their ordinances to limit families to persons related by blood, marriage, or adoption.

"Discontinue" or "Cease"

The common use of the word "discontinue" in provisions relating to nonconforming uses has also produced difficulties. Ordinances often provide that "a nonconforming use which has been discontinued for more than one year shall not be resumed." Unquestionably, such ordinances intended that the physical use of the premises for a nonconforming use shall not be resumed if the use has been stopped for more than a year.

Courts, however, have interpreted the word "discontinue" in such a way that the owner of a nonconforming use who stopped the use for more than a year but intended to re-establish it, has been able to do so in direct contradiction to the original intent of the ordinance. This problem can be cured by substituting for the word "discontinue," the words "cease," or "cessation of use." Thus, such an ordinance should read, "no nonconforming use which shall have ceased for a period exceeding one year shall be resumed."

Provisions in zoning ordinances relating to minimum habitable or usable floor areas must be watched carefully for the need of possible amendment. I believe that this is necessary because the powers of municipalities to require a minimum usable or habitable floor area in each dwelling and the extent to which such restrictions may be imposed is still unsettled.

* Village Attorney, Old Westbury, North Hills, Sands Point, New York; First Deputy County Attorney, Nassau County, New York.

To illustrate this point, there are many ordinances which provide different minimum floor areas for each residence district. (A greater minimum floor area is often required in more restricted districts than in the lesser restricted districts.) Still other ordinances sometimes provide a minimum floor area for the first floor and also a minimum area for the second floor of a residence building.

However, in a recent Pennsylvania case, (Appeal of Medinger et al., Appeal of Springfield Township, Supreme Court of Pennsylvania, March 24, 1954, 118 A (2d) 118) the Court held invalid an ordinance that provided different floor areas for each district. We must watch the further decisions of the courts to find out whether such regulations will be upheld.

Doctor's Offices as Home Use

Since comprehensive zoning ordinances were first enacted, it has been the practice to permit doctors and lawyers offices and dressmaking and millinery uses in residential districts when such uses are incidental to the main dwelling purpose. Such uses have long been recognized as appropriate in residential areas. Today, with doctors' offices located in suburban subdivision areas reached only by automobile, it is necessary

(*Continued on page* 164)

The new midget sweeper has proved able to police streets in spite of heavy traffic.

We Sweep Downtown Streets During the Daytime

Daylight use of "midget sweeper" keeps streets clean when traffic is heaviest

By W. L. KASER, *Superintendent*
Street-Cleaning Division
Akron, Ohio

STEP out of your hotel at midnight in almost any good-sized city and you're likely to see a familiar sight—street flushers, motorized sweepers and all sorts of equipment busy doing a "policing" job on the day's accumulated debris and dirt. And most of them do a pretty good job of dusting off the city.

But what about the swirling dust and paper that starts to gather as soon as the whistle blows in the morning? Can you keep shoppers, merchants, and other business people happy for eight long hours and more, while the wind whips them with dust, sand, and litter?

Akron wrestled with this problem for many years. We admitted that no city could be excused for dirt-littered streets in these days of fast, mechanized equipment. Yet the busy downtown area had us stymied. You just don't dare tangle traffic with a 10-foot-wide motor sweeper. So we settled for the familiar white wings, hand brooms, and carts—until last fall.

In October, we experimented with a small power sweeper which is now working out well as a station sweeper. It not only does a better job of sweeping gutters, but does it in half the time three white wings with hand brooms would require. This unit does not work a full shift, but in about 4½ hours it makes the rounds of the business district at least twice, and some areas three and four times. Above all, we're happy about the favorable comments from businessmen, merchants, and visiting city officials. The sweeper is a Tennant Model 75 manufactured by The G. H. Tennant Company of Minneapolis, Minn.

Because of bumper-to-bumper parking in the heart of the business district, many cities find they cannot sweep during daylight hours. The small-sweeper technique, however, is particularly adaptable to our needs, since Akron subscribes to the growing nationwide trend toward off-street parking in downtown areas.

Shoppers and workers in Akron are apparently willing to trade unlimited parking privileges in order to facilitate traffic movement. On Main Street and on the side streets there are only a few short-time parking zones, and even in these areas the maneuverability of the small 4-foot-wide sweeper eliminates traffic difficulties.

While commuters are still enjoying breakfast, the "midget sweeper" is busy scooping wind-blown paper, sand, and dust out of the gutters and into its dirt hopper. Instead of a water spray, it employs a vacuum system. And since the operator steers his small machine along the right-hand curb, he doesn't impede the smooth flow of morning traffic. By the time shoppers and downtown employees begin to arrive, the litter brought in by morning breezes has been put away.

The small sweeper generally operates about two hours in the morning and two and one-half hours in the afternoon up to 3:30 p.m. During the open periods in the operator's day, he performs other duties prescribed by the maintenance foreman. Sweeping is scheduled on a six-day week.

Conveniently located corner boxes at either end of the sweeping run serve as dumping points for the accumulated load of trash. For example, after dumping his first load, the operator works his way through the main thoroughfare and side streets toward the deposit box at the opposite end.

Street Construction

Although most of Akron's downtown streets are asphalt, Main Street has an overlay of asphalt on brick paving, with a 4-foot section of exposed paving brick along the curb. It's interesting to note that the com-

The small sweeper supplements the use of big units in Akron's sanitation program.

bined brush and vacuum system of the sweeper does a good job of "lifting" sand and dust from between the bricks.

gutter. Other municipalities have recently adopted this technique.

To aid scheduling and to simplify sweeping assignments, Akron has been mapped into eight clearly defined districts. Three or four large motor sweepers, each sweeping a path about 8 feet wide, cover the downtown area on the night shift.

Then, during the day, a fleet of six or seven sweepers patrol assigned districts of the 400-odd remaining miles of paved thoroughfares and residential streets. A high-lift tractor-loader and truck handle all debris and trash brought in by sweepers to centrally located dumping points.

We've found the high-lift loader to be a versatile machine in our operation, and even use it for scraping up compacted sand from gutters, particularly following the heavy spring rains. This technique, plus frequent sweeping, reduces cleaning of catch basins and helps prevent fouling of storm sewers by deposits of silt and sand.

The division's eight two-way radio sets—in office, superintendent's car, foreman's pick-up truck, and the utility trucks—aid in the control of the entire fleet of sweepers, street flushers, tractors, salt spinners, trucks, and snow plows. Emergency changes in regularly scheduled assignments can be readily expedited by this means.

In Akron, the Street Cleaning Division operates on a special annual assessment for street-cleaning service. The assessment is made directly to the property owner on a per-curb-foot basis. We know of at least two other sizable communities in Ohio operating under this plan of financing street sanitation.

It's an equitable investment in clean streets for the taxpayer who is assessed for service received, i.e., the rate ranges from a high of 84 cents per foot in the business district to a low of 7 cents in residential areas. We're told by visitors from other cities that our streets and sidewalks are as clean as they've seen anywhere. It is gratifying to discover that these results are obtained at less cost per curb-mile than is spent by other cities in Ohio.

Typical Monthly Cost of Operating Small Sweeper

Gas and oil	$ 7.60
8 hours per day of operator's time, 40 hours per week	268.32
Estimated cost of brushes (includes sidebrush)	30.00
Maintenance and repairs	10.00
Amortization of sweeper on 5-year basis	36.66
Total	$ 352.58

Cost of Hand Sweeping Same Area

Labor, 3 men sweeping 40 hours per week	$763.68
Estimated cost of brooms	4.59
Total	$768.27

Of course, the large motor sweepers are still the backbone of the city-wide street-cleaning operation in a community of over 300,000 inhabitants, and 419 miles of paved streets. But our experience suggests that the small sweeper has a definite place in our schedule, and certainly should look good on the year-end analysis of the department's costs.

Flushing Operation

Nor do we neglect sidewalks in the business district. They can be the source of much fine swirling dirt and dust that accumulate in the cracks and crevices. On Friday nights, the Street Cleaning Division's two 2,600-gallon flushers go to work, the operators spraying water under pressure from 30-foot hose extensions. This washes the fine material into the gutter, and is followed by "flushing in" from the street into the

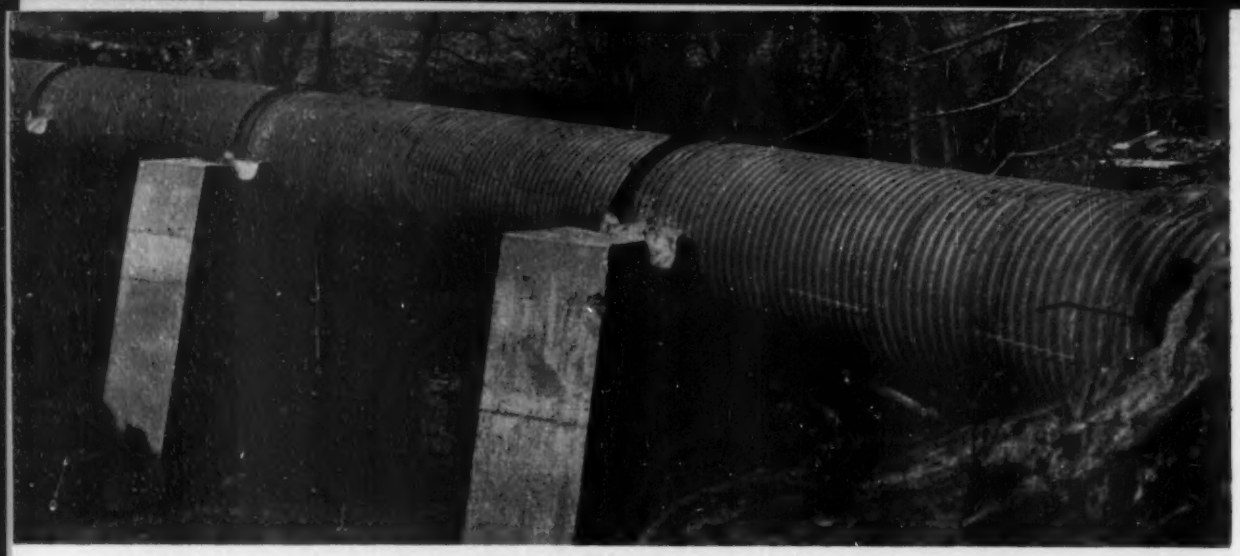
Cleveland Commemorates Centenary Of Its Most Famous Mayor's Birth

ON JULY 19 the hundredth anniversary of the birth of Tom L. Johnson was commemorated in a ceremony at "Mayor Tom's" statue in the Cleveland Public Square.

As reported in the *Cleveland Press*, the principal talk was given by William A. Stinchcomb, veteran Director of Metropolitan Parks, who had been first appointed city parks chief by Mayor Johnson. Mr. Stinchcomb described "Mayor Tom" as a great executive with an inventive mind and a magnetic personality that drew citizens and employees to him.

"His magic was such," Mr. Stinchcomb said, "that he could attract to him such men as the intellectual cultured Newton D. Baker, the acid, rabble-rousing Peter Witt, and the kindly, humanitarian, the Reverend Harris Cooley.

"He gave Cleveland lower light rates, improved water service, municipal garbage and rubbish collections at lower cost. He improved the public parks, established the Boys Farm and Warrensville Workhouse, suppressed gambling and reorganized the police."



Four creek crossings were built to specifications calling for asbestos-bonded concrete pipe, placed on concrete piers.

Rebuilding Proved Best

Enid, Okla., abandons an old sewage-treatment plant for a new one at a different location to allow its sewage-works program to catch up with a booming city's needs

By BERNAL H. SWAB*, *Consulting Engineer, Oklahoma City, Okla.*

ENID is a comparatively young city, yet it is old enough to know that no city is better than the sewers it keeps. Sanitation and civic progress, the city's 40,000 people know, go hand in hand.

But a young city—like every youngster—faces problems of vigorous growth. For example, Enid was confronted with an expensive problem of inadequate storm sewers. It was faced with the health hazard of a small, poorly coordinated sanitary sewage system caused by an awkwardly placed treatment plant.

Enid has had storm-sewer problems since its founding during the historic Cherokee Strip land rush. In the past, traffic stopped after every light rain. Storm sewers built in 1906 and later in 1920 offered a little relief. But the flash flood of 1950 so crippled the city that Mayor George Streets and the Board of Commissioners determined that never again would they allow such a disaster to occur in the city. Consequently, the city retained consulting engineers who proposed the construction of 40,000 lineal feet of storm sewers, 209 inlets, 125 manholes, certain box sewers, and other work.

The city promptly accepted the engineering proposal, voting bonds and receiving bids for the construction. The low bidder was Sudreth Construction Company of Oklahoma City, with a price of $717,053. The contracting firm manufactured the pipe used in the work itself, using 3,500-pound concrete. The pipe varied from 24 inches to 72 inches in diameter. The largest and most difficult section required placing 2,512 feet of 72-inch and 1,369 feet of 66-inch pipe in a portion of the business district. The entire project involved 39,000 lineal feet of pipe.

The next step was the correction of inadequacies in the sanitary sewer system. The enlarged system provided for 13 miles of new sewers and eliminated the need for two pumping stations.

The sewer design had to direct attention to four stream crossings. At these points, the engineers speci-

The flooding of the streets in 1950 convinced the city that a thoroughgoing storm-sewer program would benefit its people.

*Mr. Swab was associated with the engineering firm of Hudgins-Thompson-Ball, of Oklahoma City, originally retained for this work. When he established his own consulting firm, the city elected to retain him alone to complete the project.

fied asbestos-bonded, corrugated pipe, placed on concrete-pier supports spaced 17 feet apart. At another location, the sewer had to have sufficient strength to withstand vibration caused by a railroad crossing. For this location, the consultants specified the use of heavy-gauge, galvanized, asbestos-coated liner plates. Both were supplied by Armco Drainage and Metal Products, Inc.

The sewer construction cost $622,552 and called for the following sizes of pipe:

Pipe Size (inches)	*Feet of Installation*
8	7,727
10	14,723
12	4,282
15	4,496
18	8,449
21	1,379
24	3,343
30	9,760
33	6,219

The consulting engineers specified vitrified clay pipe for all sections except the 30- and 33-inch lines. The clay pipe was supplied by the Dickey Clay Company. The concrete pipe used for the sanitary sewers received two coats of Inertol Standard on the interior to protect against possible hydrogen sulphide damage.

The city then directed its engineer to prepare plans for a new, modern sewage-treatment plant. The activated sludge process seemed best fitted for this task, and the plant, now in operation, uses it.

Sewage-Treatment Process

The sewage enters the plant through a screen chamber equipped with an American Well Works mechanically cleaned bar screen. This removes screening residue automatically, with the cleaning intervals controlled either by time clock or by the liquid level in the channel. The chamber also has a hand-raked screen as an emergency bypass. Screening residue is diverted to containers and is periodically buried. A Parshall flume measures the flow at the screen chamber and records it on a Builders-Providence meter panel board.

The screened sewage then flows to a receiving well. A bypass, equipped with Armco sluice gates, can be used here if necessary. At the wet well, three American Well Works raw-sewage pumps lift the sewage to a common channel, permitting it to flow by gravity through the remainder of the plant. Each pump is able to handle 3,000,000 gallons daily; and each is powered by LeRoi gas engines, using either natural or digester gas. The wet well can be drained by opening gate valves to the sump below the pump-room floor. The 250-gpm Jacuzzi sump pumps lift the sewage to the common discharge channel.

The sewage then enters preaeration tanks that induce flocculation and thus improve settling and grease and grit removal. The tanks use American Well Works air diffusers that apply air at the rate of 0.1 of a cubic foot per gallon. These are located 4 feet above the channel, allowing grit to settle in the collecting channel but keeping organic matter in suspension. The grit is scraped to hoppers for removal. The unit also has pipe skimmers to remove grease and scum.

Primary Settling

After 70 minutes of preaeration and flocculation, the sewage flows under baffles and through multiple submerged ports to the primary settling tanks. These units are designed for two hours of detention at average flow, and use American Well Works sludge-removal equipment and Armco stopgates. The design of the tanks provides a surface area of 600 gallons per square foot per day and a weir overflow rate of 10,660 gallons per lineal foot per day.

The settled sewage then passes through Builders-Providence venturi meters that measure the flow before it enters the aeration tanks. Each of the two aerating units is equipped with diffuser assemblies using a 3-inch porous tube that is 2 feet long. The air feeds to each header through a 6-inch pipe connected by Victaulic couplings. The tanks are designed on the basis of 30 cubic feet of capacity per pound of five-day BOD. The diffusers can deliver a maximum of 1,500 cubic feet of air per pound of BOD.

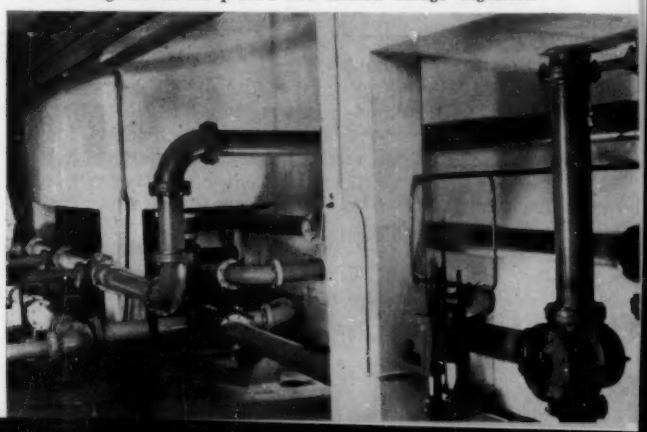
Sludge from the final settling tanks is introduced at the head end of each unit and is aerated for approximately one-fourth of the total length of the tank. At this and the other quarter points, increments of settled sewage are introduced and the aerated mixture flows to the final settling tanks. The engineers designed this feature, anticipating that the sludge will be three to four days old when aerated.

The final settling tanks are equipped with scrapers similar to those used in the primary tanks. The tanks provide a detention period of two and one-half hours. They are designed with surface area factors of 975 gallons per day per square foot, and weir overflow of 8,250 gallons per lineal foot per day.

Each tank has four tank hoppers, each connected to a common sludge-collecting hopper by appropriate piping. The hoppers use telescopic valves to remove the sludge. As the valve is lowered, the water pressure in the tank forces the sludge into the collecting

The treatment plant provides sufficient purification to the sewage to permit it to be reused immediately by industry.

Piping and valves permit much flexibility in the operation of the sewage-treatment plant's two heated sludge digesters.



hopper, thus permitting it to be sampled and inspected easily. The sludge from the final settling tanks is pumped by three centrifugal sludge pumps through variable-speed drives. American Car and Foundry plug valves control the passage of sludge through Alabama Pipe Company cast-iron pipe. The raw sludge from the primary tanks is handled by three Carter duplex plunger-type sludge pumps.

Sludge goes to either of two digesters designed to provide 30 days of digestion and 70 days of storage. The tank capacity provides 4 cubic feet of volume per capita. The raw sludge is pumped from the settling tanks to the digesters and mixed ahead of a Pacific Flush Tank heater so that it will enter at a digestion temperature of 90°. The recirculated sludge can be taken from two different levels in the digester, and the mixed, heated sludge can be discharged at three locations in the digester. The digestion tanks have Pacific Flush Tank floating covers.

Handling of Gases

The sludge gas passes through sediment traps, check valves, and flame traps to the gas system. The gas system, in turn, leads to a Connelly gas scrubber that removes hydrogen sulphide. The line then proceeds to the sludge heater, with a low-pressure gas holder "floating" on the line. As excess gas accumulates in the digester, the cover rises. When the upper position is reached, a switch closes the starting circuit of the gas compressor and pumps. This compresses the gas and transfers it to the high-pressure Chicago Bridge and Iron Hortonsphere. When the pressure reaches 50 psi, the compressor stops. When the sphere is filled and excess gas is formed, this excess is burned in the waste gas burner.

Digester sludge is dewatered on open drying beds. The sludge is dried on 24 sections of sludge beds that cover a site 22½ feet in width by 110 feet in length. The drying area consists of a layer of broken stone covered with 6 inches of sand.

The piping in the system is easily identified by the following color schemes:

air	aluminum
portable water	
hot	blue, two orange bands
cold	blue
plant water	orange
sludge-heating	orange, two black bands
gas lines	
sewage	red
natural	red, two white bands
sewage	grey
sludge	
primary	brown
return	brown, two white bands
waste	brown, two yellow bands
digested	brown, two orange bands
supernatant	green
drain	black

The bands on all pipes mentioned are spaced 5 feet apart.

The plant has its own independent potable water system with a pressure tank. It uses final effluent to flush all tanks, pipelines, and meter tubes, and for sprinkling lawns.

Air for aeration is furnished by three 2,500-cfm Roots-Connersville positive displacement blowers with horizontal inlet and outlet connections. This is a relatively new design and requires a minimum of space. To prevent clogging of the diffuser tubes and excessive wear on the blowers, the air must be cleaned of dust before compression. To combat air-cleaning problems due to high winds and dust storms, the fixed dry filters and the electronic filter were designed to remove 95% of the dust at 130% of maximum designed air capacity.

Power for the plant is supplied from the main electrical control center, furnishing 440-volt, three-phase, 60-cycle current. An emergency transfer switch is located in the main control center which cuts off certain primary power circuits upon power failure and transfers emergency power to these circuits.

When the automatic switch drops out, the emergency generator automatically starts, supplying current at 208/120 volts. When primary power returns, the emergency power is cut out. The emergency power is used for the engines of the raw-sewage pump and blower, for starting, for emergency lights, and other duties. The emergency generator consists of an Electric Machinery Company generator powered by a LeRoi gas engine.

Enid's treated sewage does not leave the city without doing a little more constructive work. A large oil refinery uses the effluent for plant cooling water, constructing an industrial water-pumping station and a pressure line from this plant to the other plant located north of site. The oil refinery compensates the city for the use of this water. Additional quantities of the effluent are available for other industrial use.

The plant is now operated by M. A. Wortz, superintendent; under the general supervision of Lance C. DeCory, sanitary engineer for the city; and under the general direction of City Manager Gerald E. Wilkins. It was built during the administration of Mayor George Streets.

Over-All Plan Carried Out in Hopkins, Minn.

A COMPREHENSIVE city plan has recently been completed and is being put into effect in the City of Hopkins, Minn., a community of about 10,000 persons in the westerly suburbs of Minneapolis. The plan, prepared by the firm of Ladislas Segoe and Associates, of Cincinnati, was financed by the City of Hopkins, the Board of Education, and the Chamber of Commerce, with some supplementary assistance from several local industries in the area.

The plan anticipates a considerable population increase in the future and proposes new major traffic arteries, increased parking facilities, new schools, additional parks and playgrounds, and a new city hall and fire station to serve the expanded development.

In taking steps to carry out the new plan, downtown businessmen have acquired sites for two of four recommended parking lots. These off-street areas are to be improved and operated by the city government.

Work has also begun on an arterial road to provide a quick and uninterrupted means of access to the commercial and industrial sections of Hopkins. A major railroad grade separation as part of this highway improvement has been ordered by the Minnesota Railroad Commission.

New Tax System Puts County Two Months Ahead

By RUFUS E. DEERING, *Treasurer*
Sedgwick County
Wichita, Kans.

RAPID growth of Sedgwick County, Kans., and its largest city, Wichita, together with a tax-collection system that was outdated, swamped the County Treasurer's office during the collection of the 1952 tax. The first half of the tax was due November 1, 1952, and became delinquent after December 20. Processing of remittances received by December 20 was not completed until April 10, 1953.

During this period remittances of $14,000,000 were processed. Taxpayers often spent from two hours to a half day in line before payment could be completed. Taxpayer jams were in order. Due to collection difficulties, posting of credits to the tax rolls was delayed and caused further trouble.

When the 1953 tax came due the collection and accounting system had been revised. Most taxpayers were handled in less than 10 minutes and seldom did anyone spend more than a half hour in the office. There were no taxpayer jams. Remittances received by December 20, 1953, were all processed by January 30. A total of 143,077 tax receipts had been issued for $20,500,000 tax collected. Posting was current.

20 Tax Systems Studied

A survey of our tax-collection system, begun in late 1951, had indicated the need for modernization of procedures. We found each tax item was being handled 17 times in the collecting and accounting process. Some 20 tax systems were studied. By adapting the best we could find and by devising new methods we were able to reduce the necessary operations to eight. Our problem was then placed in the hands of accounting machine and form manufacturers to devise answers to our needs.

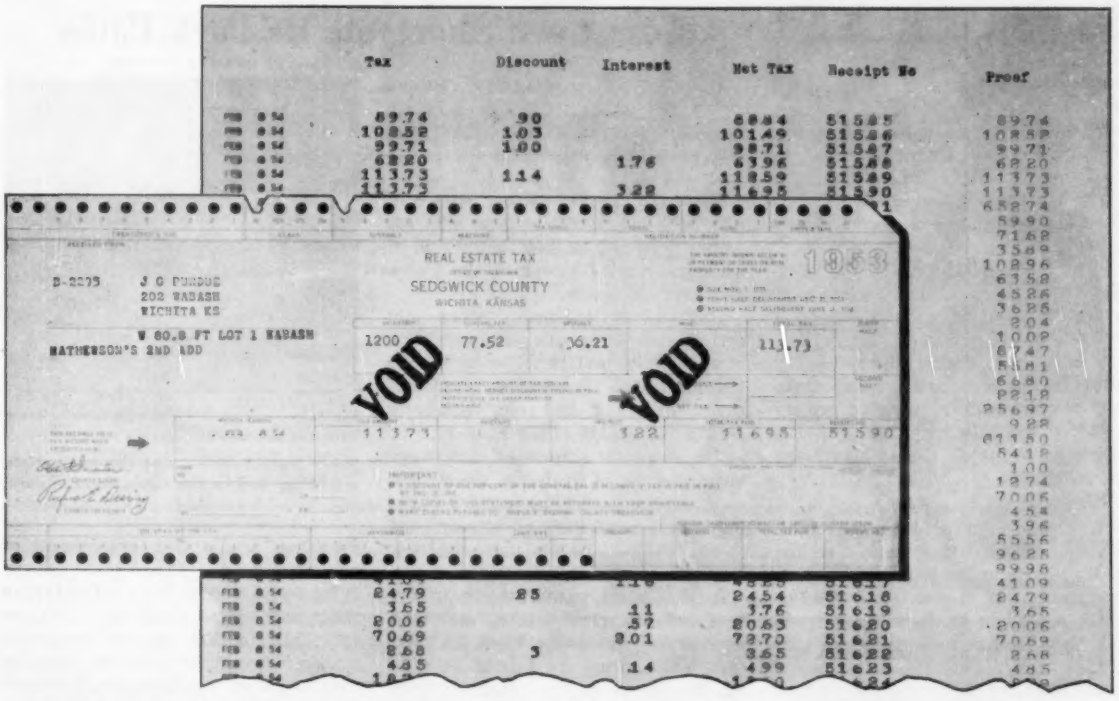
The work of this office is the collection and accounting for all ad valorem taxes, both real and personal, paving and sewer tax for the cities, drainage tax and cemetery levies. Ad valorem and special taxes collected this year will amount to approximately $24,000,000.

In addition, the office handles deposits of fees from all other county offices, school aid funds, and from such funds as inheritance tax, liquor tax, cigarette tax, road aid funds, etc. Total clearings for the year will be about $50,000,000. Total ad valorem tax items collected will be approximately 210,000.

Underwood Sundstrand tax statistical machines were chosen for the validation of tax receipts. In addition to giving us validation and totals in five columns these machines automatically date and number the receipts chronologically.

Receipts are dropped in the machine ahead of a 12-inch rolled tally sheet. All figures placed on the receipt in validating are repeated on the tally sheet by carbon. The operator places only the original amount of tax and the interest or discount in the machine. Computing and printing the net tax, the date, receipt number, and a proof total are automatic.

Totals of the original tax, discount, interest, net tax, and a proof total are carried in the machine in sepa-



Tax bill serves as a receipt when validated by machine entry on lower line; machine prepares a journal simultaneously.

rate columns and the accumulated total taken at the end of the day's run. Errors are spotted in a short time by the comparison of the proof total with the total of the original tax. Even a list of several hundred receipts is quickly scanned for errors. Taking totals for the day is simple and requires only a matter of seconds.

During heavy window runs of collections a cashier works with each machine operator. At balance time cash collected is checked against the total of the tally sheet.

Variations are quickly located as the cashier keeps a running record of settlements on the receipts themselves, such settlement showing through on the retained carbon copy. Checks taken in settlement are often added during the slack periods of the day.

Three of the Underwood Sundstrand machines are used. Two have been sufficient to handle the heaviest window trade; the third machine handles mail remittances. One machine will handle 700 to 800 settlements per day if used at the window, or up to 1,200 mail remittances a day. Daily balance is simplified by balancing each machine against an individual cashier.

Simplicity of Operation

The principal advantage of these machines is the simplicity of operation. Any operator who has used a 10-key adding machine learns the routine in a few minutes and soon acquires operating speed. These machines also have made possible the operating of a night shift to work mail remittances. During the month of January two machines were in operation for seven hours each night. Since only checks and money orders were handled, cashiers were not necessary.

The Underwood machines have added to our facilities for making tax receipts. In less than one minute new control bars can be slipped into the machines setting them up for spreading tax on the receipts. Accuracy of the receipts, made in groups of 20, are checked by taking totals which must match the totals of the tax roll pages.

Taxpayer reaction has been excellent. The system has been especially valuable in making an early return on lists sent in by banks and mortgage companies. These lists were formerly set aside until window trade was handled but now are kept current.

Tax rolls are still used for all tax. Posting of credits has always consumed considerable time, for all tax receipts must be posted, then checked at a later date. Time consumed in this operation was reduced about 40% by a method suggested by Marvin H. Dillingham, County Treasurer, Washington County, Bartlesville, Okla.

A space for posting is set aside on the lower right-hand corner of each tax receipt. This space is divided and labeled to fit exactly over appropriate columns in the tax roll. This credit posting box is backed with spot carbon. Posting is then done by laying the receipt on the tax roll and posting on the receipt. The posting figures are carried onto the tax roll by the spot carbon. Checking is done by leafing through the tax receipts instead of checking against the rolls. Proof of posting appears on each receipt.

Coding System

Time formerly consumed in handsorting of tax receipts for posting and distribution and then re-sorting into chronological order was reduced by adapting the McBee keysort type of marginal punch coding system to our tax receipts.

With this system we break our receipt carbons down to type of tax (real, personal, oil royalty, and utility), then to tax roll number, then to page and line for personal tax, or code number for real estate. This sets the receipts in order for rapid posting.

Finally, after posting, the receipts are sorted back to numerical order through a code punched daily as receipts are issued.

Original and Carbon Mailed

In designing our tax receipt we did away with tax notices and now mail both the original and carbon copy to the taxpayer as a notice. Our experience is that 1% to 2% fail to bring or send these notices in. However, we have established a billing department where these may be replaced with slight delay.

Carbon paper was replaced by spot carbon. The saving in paper and printing cost on this was about $1,000 the first year when compared to the prior year's bills for this item.

Collections were speeded by mailing tax notices in a dual envelope developed in cooperation with the Tension Envelope Corporation of Kansas City, Mo. Remittances are mailed to us in the same envelope used for mailing out the notices.

Change of the system has placed the detail work of this office two months ahead of prior years as of April 1, 1954.

Johnstown Shortcuts Its Park Paths

LARGER CITIES planning municipal parks might well take a lesson from Johnstown, Pa., in laying out the sidewalks, especially for downtown areas.

Central Park, refreshing square in the very heart of the city, was set aside as a park in 1800 in the will of Joseph Johns, founder of the Pennsylvania steel city.

Picturesque sidewalks were laid for leisurely strolls through the maple grove and benches were dotted about for the comfort of downtown shoppers and city residents seeking a "breath of the country."

The winding sidewalks may have been all right in Grandpap's day. But today, Johnstown is laying new walks through Central Park eliminating the meandering paths and running new ones in straight lines.

City officials found people in too much of a hurry to take time with the curving sidewalks. They cut their own trails across the greens, in spite of the fact that the original paths were laid out to encourage leisurely strolling and fuller enjoyment of park facilities.

New, straight walks, like the one at left, are being laid in the city's Central Park.

Johnstown officials lay no claim for their solution as ideal for all places and indicate that smaller city park systems would do well to continue avoiding the "straight and narrow" approach to path planning.

Trail-Blazing Civil Defense Plan for Milwaukee

THE first serious attempt by an American city to develop a workable plan for halting any further increase in its existing vulnerability to atomic and hydrogen bombing has been embodied in a report to the Milwaukee (Wis.) Civil Defense Administration and the Milwaukee Metropolitan Civil Defense Commission.

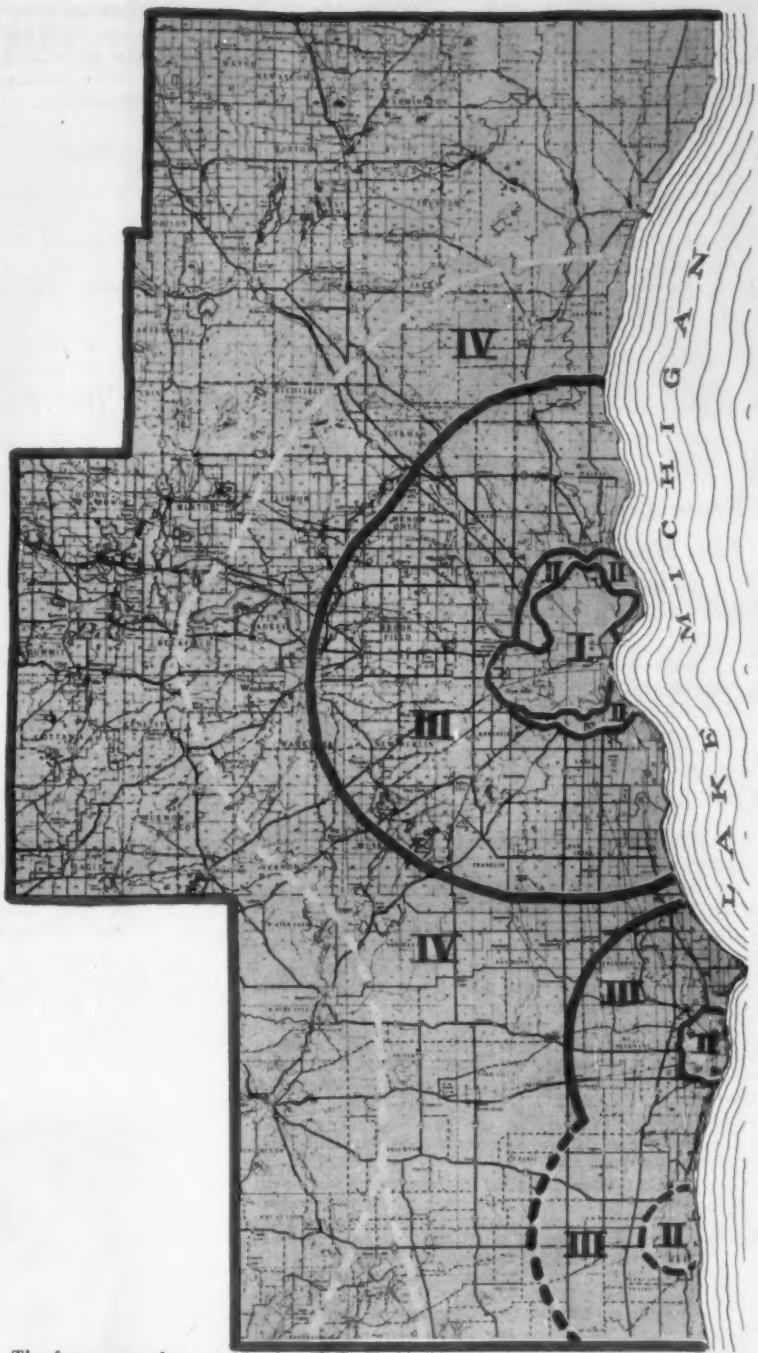
The plan, prepared by Oscar Sutermeister, a consultant on defense planning, would prohibit the construction of new defense industry within 14 to 16 miles of the center of Milwaukee. Within this same area, the plan would also prevent any significant expansion in the total floor space of existing defense industries, and would require the removal of facilities manufacturing more than 5% of the total national output of a critically needed product.

Furthermore, the plan would halt any major future increase in floor space or population concentration in a central core of some six miles in diameter by requiring that building space for new nondefense industries and for new commercial and residential uses could not be constructed unless a slightly greater amount of existing building floor area was torn down or removed.

Zoning Used to Enforce Plan

The area within the 14 to 16 mile radius is divided into three zones, which are called Vulnerable Urban Districts. The zones would be laid out in roughly concentric circles with the size of the first two depending on the degree of concentration of defense-supporting industries and resident and daytime population.

To prevent any increase in the vulnerability of Milwaukee to the fire storms that are expected to occur after atomic or hydrogen bombings, the plan calls for all new buildings that are constructed in the central-most zone to be of fire-resistive construction. All but small residential



The four zones that are features of the proposed Milwaukee civil defense plan are shown above. In the center-most zones—Nos. I and II—building space for new nondefense industries and for new commercial and residential uses cannot be constructed unless a slightly greater amount of existing floor area is torn down or removed. New defense industries would be prohibited in Zones I, II, and III. Thus most new growth in the Milwaukee region would be channeled into Zone IV where a regional dispersal plan would guide development patterns.

buildings in the next two zones would be of similar construction, and every new building in the metropolitan region regardless of location, would be required to have its share of an auxiliary reservoir of water for fire fighting.

To place a lid on the vulnerability of the city to the blast effects of massive bombings, all new steel and reinforced concrete buildings of three stories or more in height would be required to have fully continuous connections between principal columns, beams, and girders to form structures that will resist the severe stresses resulting from the blast. Similarly, all but a few new buildings over two stories high having bearing walls would be prohibited.

Since the restrictions within the three interior zones of the Milwaukee area would force much of the new growth to occur in the outlying areas, a fourth zone would be laid out varying in width from 10 to 40 miles and encircling the other three districts. Within this zone an active regional planning program is recommended to guide the new growth into a dispersed pattern that will assure a minimum of vulnerability.

Mass Evacuation Plan

To further reduce the vulnerability of the central areas of Milwaukee, the plan also recommends the development of a mass evacuation scheme, opening of secure underground structures, and the creation of firebreaks, and other measures.

Finally, the plan proposes a series of acts and amendments to the Wisconsin statutes that would produce a legal framework for the various recommendations embodied in the program.

The plan, which is explained in a detailed report titled "Reduction of Vulnerability in the Milwaukee Area*," is the tangible result of the leadership of Milwaukee's Mayor Frank P. Zeidler in seeking more effective civil defense measures for the nation's cities.

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* Copies of the study may be obtained from the Milwaukee Civil Defense Administration, 8814 W. Lisbon Ave., Milwaukee 16, Wis.

Two Letters from City Managers

From Edward P. O'Toole, City Manager, Revere, Mass.

I am enclosing a copy of a card that was recently given to all the members of the Revere Police Department.

I have also submitted copies of this card to all mayors and city managers in the Commonwealth of Massachusetts and have been informed that many of them are giving copies to their officers."

"Policeman's Prayer" Addressed to St. Michael

"Dear St. Michael, Heaven's glorious Commissioner of Police, who once so neatly and successfully cleared God's premises of all its undesirables, look with kindly and professional eye on your earthly force.

"Give us cool heads, stout hearts, hard punches, an uncanny flair for investigation and wise judgment.

"Make us the terror of burglars, the friend of children and law-abiding citizens, kind to strangers, polite to bores, strict with lawbreakers and impervious to temptations.

"In troubles and riots give us sheer muscle without temper; at the police court, give us love for truth and evidence without any thought of self.

"You know, dear St. Michael, from your own experiences with the devil, that the policeman's lot on earth is not always a happy one; but your sense of duty that so pleased God, your hard knocks that so surprised the devil, and your angelic self-control give us inspiration. Make us as loyal to the law of God as we are particular about the law of the land.

"And when we lay down our night sticks, enroll us in your Heavenly Force, where we will be as proud to guard the throne of God as we have been to guard the city of men. Amen."

Presented to Revere Police Officers by Edward P. O'Toole, City Manager

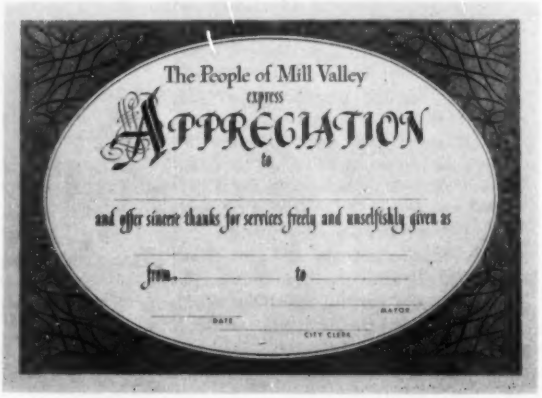
From A. E. Almcrants, City Manager, Mill Valley, Calif.

For many years I have observed citizens giving generously of their time and energy on behalf of their government in the capacity of councilmen, commissioners, and committeemen, who upon completion of their term of office have left with a vote of appreciation. It has always been my thought that some appropriate certificate could be devised as a permanent record of services freely and unselfishly given, and consequently, in cooperation with one of our councilmen, the accompanying certificate became a reality.

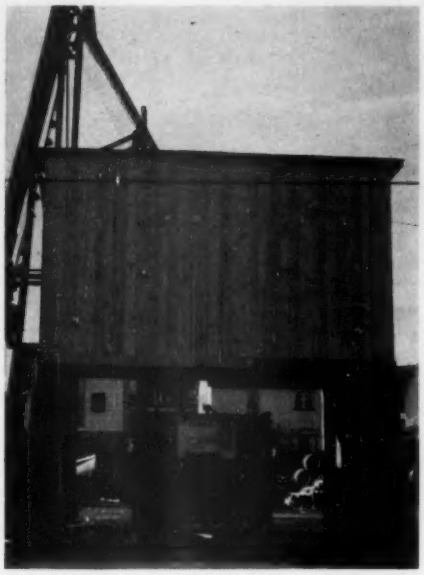
With the thought in mind that other cities may desire such certificates, extra copies have been printed without the "The people of Mill Valley" and these are available through the "Marin Printer" at 417 Miller Ave., Mill Valley, at a rate of 25 cents per certificate."

The certificates (11 inches by 8½ inches in size) are printed on parchment paper with black and gold ink, and when lettering has been supplied in the blank spaces they present a most attractive token of appreciation.

A. E. ALMCRANTS
City Manager
Mill Valley, Calif.



A 40-Ton Salt Bin



(Above) Superintendent Charles Brenning (center) oversees the delivery of rock salt to the town's new storage bin. (Left) Even the largest trucks have no difficulty in maneuvering beneath the convenient unloading bin.

Town of Cortlandt, N. Y., removes labor-consuming botttleneck from its ice- and snow-removal program by building a bin for the storage of salt

BAGGED SALT—150 tons of it—is tough to handle manually under any circumstances, but when a highway department crew is busy with routine work, loading and unloading this quantity of material each season bottlenecks the department's program. Yet, Charles Brenning, highway superintendent for the Town of Cortlandt,* N. Y., requires this much salt each year to keep the 96 miles of street and highways under his supervision free from ice and snow.

When faced with the handling of the salt, Superintendent Brenning has been understandably reluctant to break up his crew to deal with the job. The men, too, disliked the assignment even when time was available. The bags were heavy, and the salt, working its way into their clothing, irritated sweaty skin.

However, since the salt had to be loaded, Mr. Brenning looked for a method of handling the material without the need for the men to have direct contact with the bags. He and his crew constructed a 40-ton salt bin that is loaded by bucket elevator and so abolishes all manual contact with the material.

The bin is 20 feet long, 10 feet wide, and 10 feet high. It is built of 2-by-10 planks on 4-by-4 studs and 4-by-4 bolted "walers." Three steel, 14-inch, 35-pound, I-beams support the bin and its concrete floor.

The beams rest on two concrete piers, each measuring 10 feet in height, 10 feet in length, and spaced 20 feet apart, which provides a 16-foot clearance between the inner sides of the piers. This height and width allows the largest truck to pass under the bin easily. Although the bin has two discharge chutes, it has no partitions.

The bucket elevator operates on a 12-inch belt and is powered by a LeRoi gasoline engine. The elevator is covered to prevent wind from blowing the salt out of the buckets and to protect the buckets when they are not in use. The elevator can lift the salt at the rate of 15 tons per hour.

Ice-Control Equipment

Superintendent Brenning has two heavy Mack trucks equipped with Good Roads Jet 7-yard spreaders and two Tarco "Scotchmen" spreaders that can be attached to the standard dump trucks. He will use a combination of sand and salt when the weather produces ice and sleet. He uses plain salt when snow is falling. With this new bin located conveniently near the center of town, he can quickly dispatch trucks in all directions. This procedure allows for prompt, efficient clearing of ice and snow from the town's streets.

For the sand-salt loading, he fills the truck two-thirds full of sand and the other third with salt. The salt works itself through the sand and a very acceptable mixture is achieved as the spreading operation progresses. The application of either sand-salt, or salt alone, will vary from one-fourth to one-half ton per mile.

The new bin was assembled by William Rose, Raymond Mowbray, and George Wakeley, of the Town Highway Department.

* Town of Cortlandt Highway Department is located at Buchanan, N. Y.

The big tractor heads down the earth side of the ramp, filling its 2-yard bucket on the way.

A Report from Two Midwestern Cities

Sanitary Fill Series, XII

Hutchinson, Kans., develops a new type of equipment for fill work; Lansing, Mich., is forced to build a fill

THE waste motion has been taken out of building a ramp-type fill by the development of new equipment in Hutchinson, a central Kansas city of 40,000. No longer need the tractor turn as it proceeds across the ramp. Equipped with the specially built blade designed by Cecil Bybee, superintendent of refuse collection and disposal, the tractor levels the refuse when in forward motion and pushes dirt when in reverse.

The blade is a standard 18-inch ripper installed on the rear of an Allis-Chalmers HD-9G crawler tractor

Without turning for the reverse trip, the rear-mounted grader blade of the tractor prepares the refuse for compaction.

that has been fitted with a 2-yard TS-9 Tracto-Shovel for pushing dirt. On the ripper is mounted, in hinged fashion, a regular motor grader moldboard whose length is equal to the width of the tractor. On the reverse trip, the grader blade spreads and distributes the trash so that the crawler's tracks can crush and compact it.

Hutchinson has been using the sanitary-fill method as a feature of its over-all refuse collection and disposal service for the past ten years. A fee of $1 per household per month makes the work self-supporting. This provides garbage and trash pick-ups twice a week. The city negotiates for a higher charge for more frequent service in the business and commercial areas.

In ten years, the city has reclaimed more than 45 acres of wasteland and is currently working another plot of 50 acres near the airport. The fill receives approximately 150 tons of refuse per day and raises the level of the land 13 feet.

LANSING, MICH.

Lansing, the capital city of Michigan, was practically forced into a sanitary fill operation because of the difficulty of purchasing land to serve as a public dump within a reasonable distance from the city. The old burning dumps, with the attendant rats and stench, provoked violent neighborhood objections and court injunctions.

Two of the city's industries also were compelled to surrender their dumps and deliver refuse to the fill because they were unable to completely extinguish their dump fires. Some of the material deposited was so inflammable that it ignited from the sun's rays. The nuisance caused residents of the area to serve warrants on the companies demanding the closing of the dumps.

For the past two years, Lansing has operated its fill, reclaiming 110 acres of a worthless, abandoned gravel pit. Collins E. Thornton, director of public service and city engineer, reports that about 600 cubic yards of compacted material is contributed to the fill each day by the city's 93,000 residents.

The city uses an Allis-Chalmers HD-15G crawler tractor with a 3-yard Tracto-Shovel to spread and compact the rubbish to 30% of its original bulk and spread

A 2-foot layer of sandy fill spread on compacted rubbish and manufacturers' wastes will provide a thorough, sanitary cover.

a cover consisting of overburden stockpiled beside the pit during past years.

The trenches that receive the rubbish average 100 feet in length, between 30 feet and 40 feet in width, and 6 feet in depth. Refuse consists only of rubbish and manufacturers' wastes. The city disposes of garbage separately by delivering it to the sewage-treatment plant where it is put through a grinder and mixed with digested sludge.

The entire operation has been so satisfactory that Lansing's fill-and-cover operation is serving as a model for other nearby cities that come to observe the procedure and then adopt it at home.

The tractor has to keep busy gathering the rubbish together to make compaction and covering more effective.

The City Tells Its Story

Municipal Public Relations

Edited by PAN DODD WHEELER

Executive Director, Government Public Relations Association

Mayor deLesseps Morrison, of New Orleans, says

"Salesmanship Is Needed to Get Things Done!"

A MAYOR, in addition to his administrative duties, must also be his city's number one salesman.

Mayor deLesseps Morrison, of New Orleans, said this to city officials of Tennessee who have selected him "Southern Metropolitan Mayor of the Year." In speaking to them and to other groups of municipal leaders over the country, Mayor Morrison has plugged away at the necessity of salesmanship on the part of officials. "Public relations and salesmanship," he recognizes, "cannot and should not cover up a bad program or an incompetent, insincere public official. Public relations can never be any better than your performance. "But," Mayor Morrison points out, "your public relations can, and often does, fall below the standard of your performance. Many public officials, through their modesty or lack of public relations know-how are depriving themselves *and their city* of a full measure of success."

Professional Help Is Needed

The New Orleans official admits that he needs "someone to help me use the tools of good salesmanship wisely." So, he says, "when I became mayor, one of my first tasks was to set up a public relations office, not to propagandize and advertise the virtues of the city administration, but to be my right arm in presenting to the public, facts and information concerning municipal services."

How good Mayor Morrison's relations with his people are is indicated by the record. In his eight years in office, the mayor has been elected three times—first by a narrow margin; the last two times by substantial majorities.

He has led the people to understand the need for accepting financial burdens, made necessary by physical progress, and has completed a new union passenger terminal; built railroad crossing separations and expressways costing $57,000,000; led the effort which has made New Orleans the nation's second port; attracted private investments in plants and facilities in New Orleans of more than $1,000,000,000, developed one of the country's comprehensive municipal recreation programs; installed modern budgeting, centralized purchasing, improved personnel practices at city hall; and led a winning fight for a new city charter under which the city began operating on May 1 this year.

Mayor Morrison has been able to accomplish all this because he has put into practice his understanding of the dynamics of human relations, has utilized expert help in telling the city's story, and has tried out new public relations techniques.

People like credit for what they do. Mayor Morrison has given credit, publicly and repeatedly, to people and groups for their roles in the city's progress. He takes his city department heads into his confidence on all major matters, eliciting and using their suggestions. The mayor and other city officials often adjourn weekly staff meetings to a project site to look over and discuss what is being done.

"Public relations and the proper handling of facts and information," Mayor Morrison says, "is not a sporadic matter that can be accomplished on the spur of the moment every now and then. It is work which must be handled on a long-range basis, properly planned and executed, continuously, to secure maximum benefit from it. We have this kind of a program in New Orleans and thus can take advantage of facilities of newspaper, radio, and TV for greatest impact with a minimum of inconvenience and time-loss for the public official or the media people."

In addition to carrying on the traditional public relations activity—working with the newspapers, preparing radio and television materials, publishing an annual report and other informational materials—the New Orleans public relations unit and the mayor have utilized some other techniques.

Mayor Morrison believes the good salesman "shows" the value of his product instead of just telling about it. So, pictures and charts are important elements of the city's story-telling process. "Before" and "after" pictures—both movies and stills—are made of all city projects. Pictures of city people and city services are utilized for newspaper and television presentations, for talks before civic clubs, and in city publications like the annual report which is 90% pictures.

Motion pictures, in color and without sound, are a favorite selling tool of the New Orleans mayor. Movies are used for live and TV showing, with city officials providing the commentary to suit the particular group or occasion.

Bus Tours Mold Opinion

A unique public relations activity is the weekly bus tour, personally conducted by Mayor Morrison. The tours are every Thursday afternoon and some 25,000 citizens have taken them. Mayor Morrison believes the tours have touched some "key molders of public opinion" during the nearly three years they have been conducted.

DeLesseps Morrison has this advice for other city officials: "The necessity for municipal salesmanship is obvious to most of us. The tools of selling are available. I need someone to help me use the tools wisely. So will most of you. The combination of a good program and a sound, selling approach for it, can make our cities better cities and can strengthen urban democracy in America."

City "Salesman" in Action

THAT Mayor Morrison of New Orleans practices what he preaches is indicated by the pictures on this page. The mayor credits two of his associates with the success of his public relations program. One is now chief administrative officer of the city, formerly the public relations director, David R. McGuire, Jr. The other is current director of public relations, Glen Douthit, who served as McGuire's assistant for three years before assuming his present post this May.

Both McGuire and Douthit are former newspapermen and both are members of the Government Public Relations Association, Mr. McGuire serving as the current president, 1954-55.

(Above) The mayor personally conducts a weekly bus tour. (Right) Pictures and charts spark verbal annual report presentation.

(Below, left) Welcoming a Latin American delegation and talking with department heads (right) "sell" the city.

Families displaced from slum housing in neighborhoods undergoing rehabilitation will be accommodated in developments such as the Providence Housing Authority's "Hartford Park" project shown above. There are 748 dwelling units in Hartford Park.

Providence's Urban Renewal Program

Development of a "Guide Plan" is feature of a neighborhood improvement process

By DONALD M. GRAHAM
Executive Director
Providence Redevelopment Agency
and
ROBERT F. ROWLAND, *Secretary*
Mayor's Advisory Committee on Housing
Providence R. I.

NEIGHBORHOOD improvement must be based upon a neighborhood guide plan, and such a guide plan must be a vital part of the "master process" of over-all community development. No single project, or specialized technique for rehabilitation or rebuilding, can secure the broad objectives of urban renewal. These are the two guiding principles of the urban renewal program in Providence, R. I. Through its city planning, redevelopment, and public-housing programs, the city has laid a firm foundation upon which to build its urban renewal effort.

Since 1945, Providence has maintained an active city planning program, and during the last eight years, the Plan Commission has developed long-range plans for land use and population distribution thoroughfares, public-school sites, and playgrounds and playfields. In this period it prepared also a new zoning ordinance, and with the Finance Department has maintained since 1950 a capital budget and a capital improvement program. In one sense these plans can be regarded as a single flexible framework within which more precise plans and schedules for the removal of individual neighborhood areas can be prepared and related to requirements for the city as a whole.

Basic Housing Programs

In 1946, the Commission prepared its "Master Plan for the Redevelopment of Residential Areas." Guided by this plan, the Providence Redevelopment Agency has prepared detailed redevelopment proposals for 12 central areas of the city, and the City Council has approved Official Redevelopment Plans for 3 project areas.

Clearance and reconstruction have a very important role as one element of the neighborhood upgrading process. Present redevelopment powers will be required to remove the small areas of irretrievably poor housing and hazardous nonresidential land uses, and to provide sites for new investments in good housing and well-equipped neighborhood facilities. Systematic new investment is essential if the process of neighborhood renewal is to overcome the constant trend toward decline. Furthermore, we may anticipate a broadening of redevelopment, or renewal, powers based upon the need for slum prevention.

Public Low-Rent Housing

In order to provide for the rehousing of low-income families living under substandard conditions and those families who will be displaced from slum clearance areas or by other public actions, the Providence Housing Authority has built and now maintains seven projects containing some 2,500 dwelling units, in addition to 250 units of medium rental veterans' housing. Without such adequate facilities for the relocation of low-income families, the work of neighborhood improvement would be hampered.

Spearheaded by Mayor Walter H. Reynolds' Advisory Committee on Housing, Providence is proceeding to establish a strong minimum-standards housing ordinance. The centralization of regulatory controls over housing and the consolidation of inspection services under the proposed new building code, will help immeasurably in the systematic enforcement of these minimum housing standards.

The redevelopment program for slum-blighted areas was based, in part, on extensive use of the American Public Health Association's *Appraisal Method.*

Scope of Improvement Work

The problem of slum prevention and blight elimination touches the substantial majority of the families of Providence. Redevelopment Agency staff estimates indicate that 60,000 of the city's 74,000 dwelling units are located in areas which require some form of organized neighborhood improvement activity. Areas which are predominantly in need of housing improvement measures short of clearance contain an estimated 53,000 dwelling units, or some two-thirds of the city's total.

Clearly the housing improvement problem in Providence is an array of individual problems, whose solution can be considered as a series of many separate jobs carefully coordinated and scheduled on a neighborhood basis. These individual jobs may include street repair and lighting improvement, shade-tree planting, slum clearance, housing rehabilitation, code enforcement, school modernization, playfield building, rezoning, and water and sewer main replacement or relocation.

To implement this approach to neighborhood rebuilding, municipal agencies and civic organizations have been working for several years with an improvement program for the city's 200-acre Mount Hope Neighborhood.

Detailed studies of housing conditions, land use, and housing market characteristics have underlined the need to replace small pockets of the poorest dwellings by new housing and some new neighborhood facilities.

The area itself is well situated as a residential neighborhood, easily accessible to downtown and surrounded on three sides by good quality residential areas. Because of its favorable location, land made available through selective clearance will provide a desirable, in-town site for housing re-use, in conformity with the Master Plan.

Many dwelling units in the neighborhood are in excellent condition and can be protected from blight. Many are in basically sound condition and can be restored to acceptable standards of health and safety through the active interest of property owners and tenants.

Work in the Mount Hope Neighborhood will serve to perfect techniques for comprehensive neighborhood improvement action, and success in the area will permit the extension of these methods to other city neighborhoods.

Elements for a New Approach

In order to develop a sustained program, the City Plan Commission and Redevelopment Agency are preparing a *detailed guide plan* for neighborhood improvement. This plan is intended to set forth recommendations for such things as dwelling densities, changes in the traffic pattern, locations, and service standards for neighborhood facilities, and adjustments in the zoning plan. Such a plan will also assist in outlining the final boundaries of redevelopment project areas in which clearance and/or extensive rehabilitation is required.

An action program for coordinating the diverse activities of various municipal agencies, including inspection services, is also in preparation. Such a program will serve to concentrate the work of these agencies according to an agreed-upon improvement schedule, and as a single improvement project.

With the development of the neighborhood guide plan, the costs of the total improvement project must be included in the city-wide capital improvement program. This *financing program* will provide for the scheduling of public improvements indicated by the neighborhood plan and will establish a budget, within which such improvements can be financed.

In addition to the general plan and the capital improvement schedule, *redevelopment plans* are being formulated to outline the proposals for selective clearance areas, and the *detailed site plans* are being prepared for the improvement of public facilities in other areas of the neighborhood.

Finally, *a community action program,* relating the contributions made by nongovernmental organizations to the work of municipal agencies has been evolving since the first stages of the Mount Hope Neighborhood study. Interest in the preliminary planning of improvements designed to meet the housing and institutional needs of the neighborhood's social groups has been maintained by special committees of the Council of Community Services. Since the area provides housing for more than one-third of the city's Negro population, the Urban League of Greater Providence has participated actively in the formulation of the improvement program, and all proposals for a better neighborhood are reviewed by the area's own citizen organization, the East Side Neighborhood Council.

According to the rehabilitation plans for the 200-acre Mount Hope Neighborhood, stable housing, as indicated by the house at the left, will be preserved while other structures, as shown in the other photographs, will be restored where possible or completely demolished where there is no hope for reconstruction. New public playgrounds will be built to improve the area.

New Housing Act Emphasizes Slum Prevention and Neighborhood Rehabilitation

IN THE Housing Act of 1954 (H.R. 7839, 83rd Congress), signed by President Eisenhower on August 2, major emphasis is placed on the prevention of slums and urban blight. To further this new emphasis, local communities are required as a condition to receiving federal assistance to slum clearance and urban renewal, low-rent public housing and certain new FHA insurance programs, to develop and put into operation a workable program utilizing all means available to eliminate and prevent slums and urban blight.

New assistance is provided to the conservation and rehabilitation of housing and neighborhoods and to local, regional, and state planning to assure efficient and proper development of communities. Grants are provided to encourage cities in developing methods and techniques for the prevention and elimination of slums and urban blight. The administration of related programs is coordinated to assure that the federal assistance provided will be used with a minimum of waste and duplication, and with maximum utilization of local initiative and private financing and enterprise.

Existing laws are amended to liberalize and make more effective assistance to the provision of new housing and to make it easier for families to purchase or build new homes or to repair or buy existing homes. The Government's facilities to assist in the distribution and provision of home mortgage credit are revised, first, to assure the provision of adequate home mortgage credit, and second, to provide for a gradual substitution of private investment funds for federal funds in the provision of such credit.

Provisions are also added to existing laws to protect the consumer and the Federal Government against abuses in the FHA home repair and improvement program and to prevent excessive profits through "mortgaging out" in connection with mortgage insurance on rental housing.

The foregoing paragraphs are from a 9-page mimeographed "Brief Summary of the Housing Act of 1954," prepared by the Legal Division of the Housing and Home Finance Agency.* Other excerpts from this Summary follow:

New FHA Assistance to Prevention and Rehabilitation of Slums

A new Section 220 program authorizes FHA mortgage insurance for the rehabilitation of existing dwellings as well as the construction of new dwellings in slum clearance and urban renewal areas where federal aid to slum clearance or urban renewal is being extended under Title I of the Housing Act of 1949. Except as to existing Title I projects, communities are required to have an approved workable program for the prevention and elimination of slums and blight. . . .

The new Section 221 program provides FHA insurance for low-cost housing for displaced families in a community where there is being carried out a slum clearance and urban redevelopment project or an urban renewal project under Title I of the Housing Act of 1949. . . .

Slum Clearance and Urban Renewal

The slum clearance and urban redevelopment program authorized by Title I of the Housing Act of 1949 is broadened to authorize federal assistance to local communities, not only in the clearance and redevelopment of slum areas as originally provided by Title I, but to help them in preventing the spread of slums and urban blight through the rehabilitation and conservation of blighted and deteriorating areas. Loans and grants are provided for plans for voluntary repairs and rehabilitation of buildings, and for clearance of deteriorated structures, reconstruction of streets, and necessary improvements. New contracts for Federal assistance under Title I cannot be entered into unless the local community making application has presented and the Housing Aministrator has approved a workable program for eliminating and preventing slums and urban blight. Grants are authorized to localities to assist in developing, testing, and reporting on improved techniques for preventing and eliminating slums and blight.

Low-Rent Public Housing

The Public Housing Administration is authorized to enter into new contracts during fiscal year 1955 for assistance to not more than 35,000 additional public housing units. The community in which a project will be located must be carrying out a slum clearance and urban redevelopment or urban renewal project with assistance under Title I of the Housing Act of 1949 and certify that the low-rent public housing project is needed to assist in meeting the relocation requirements of Title I of the Housing Act of 1949 by providing housing for persons displaced by the slum clearance operations. The community must also have a workable program for eliminating and preventing slums and urban blight. The total number of dwelling units in a community under a new contract may not exceed the number of units needed for the relocation of families displaced as a result of federal, state, or local governmental action in the community.

Changes are made in the low-rent housing program with respect to preferences for admission of tenants and payments in lieu of taxes. Provisions are also added to make the public housing program self-liquidating so far as possible and to provide a procedure for selling low-rent public housing where a local community by resolution or ordinance, or by referendum, has determined that

* Requests for the full text of the Brief Summary may be addressed to the Group Services office of the Housing and Home Finance Agency, Washington 25, D. C. A much more detailed summary of the Act's provisions is also available from the same source.

a low-rent project should be sold to private ownership.

The Housing Administrator is authorized to make planning grants to state planning agencies for the provision of planning assistance to cities of less than 25,000 population. Grants are also authorized to official state, metropolitan, or regional planning agencies empowered under state or local laws to perform planning work in metropolitan and regional areas. Grants will be used to assist surveys, land-use studies, urban renewal plans, and technical services.

The Housing Administrator is authorized to resume the making of advances to the states, their agencies and political subdivisions for the planning of public works (other than housing) which conform to an over-all state, local, or regional plan approved by a competent state, local, or regional authority. This authority expires July 1, 1957, and appropriations up to $10 million are authorized.

Public Facility Loans to State and Local Public Agencies

The authority in the Reconstruction Finance Corporation Liquidation Act to make loans to state and local public agencies for public facilities is placed in the Housing Administrator. An appropriation of $50 million is authorized for the loans. The termination of the program is extended from June 30, 1955, to June 30, 1956.

The President is given standby authority up until July 1, 1955, to designate periods when Title III of the Defense Housing and Community Facilities and Services Act of 1951 can be used to provide federal aid in the provision of defense housing and community facilities and services in critical defense areas. The President can also designate a specific project or projects to be assisted.

How to "Salt" Away A Snowstorm

and how to stop worrying about auto corrosion

SALT, as a tool of snow-removal crews, today has won almost as secure a place as the snow plows. In general, most cities which have studied the use of salt carefully seem agreed that a maximum application of 0.25 of a pound of salt per square yard is as much as is necessary to get good results. Many cities clear their streets of snow with much smaller applications.

Most cities like to vary the use of the salt with the type of snowstorm. A light snowfall, under 4 inches, can be cleared with salt alone in most cases, judging from experience in Newark, N. J., New York City, and others. If the fall is heavier, the plows will go on duty first and the salt trucks will follow. No one likes to delay sending the salt trucks out. They keep the snow mealy, prevent it from freezing to the pavement, and generally make the snow-clearing work much easier.

Ice Control

Salt, promptly applied, readily solves ice and sleet problems also. In Winnetka, Ill., Village Engineer R. L. Anderson has found that salt without abrasives does a better job than abrasives and chlorides combined. Moreover, he finds that it cuts his manpower requirements by half. Winnetka uses two trucks, each carrying a Tarco "Scotchman" salt spreader. Each truck has a driver and helper who apply the salt at a rate of 400 to 500 pounds per mile on a 12-foot spread.

A Tarco "Scotchman" applies salt to a Pennsylvania roadway during a snowfall.

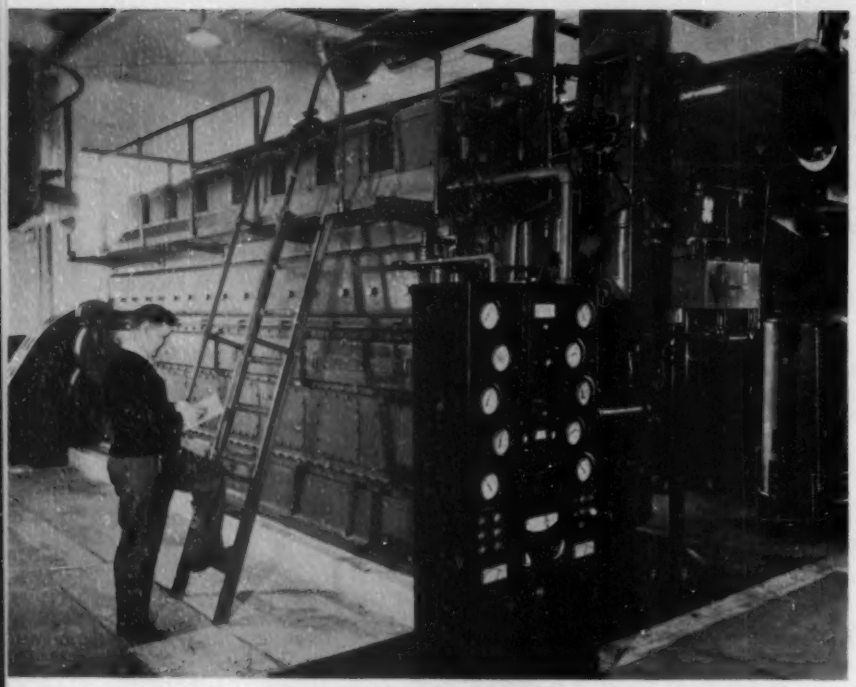
Major Stumbling Block

Public fear of salt seems the major stumbling block. When the brine evaporates on the fenders of cars, the white grains of salt remain. The public then associates this with corrosion on their cars. As a consequence, the city often receives demands that the use of salt be prohibited. Occasionally even the large powerful automobile associations echo this cry.

Corrosion studies indicate that this fear has some substance. The most exhaustive study of this kind currently available was made by the International Nickel Company, Inc., under the direction of F. L. LaQue and E. J. Hergenroether. They showed that while a chloride brine *can* aggravate corrosion, it must take second place to humidity, the most important cause.

The greatest amount of corrosion caused by salt, they found, occurred when salt was mixed with a very small percentage of chloride. Pure water itself appears to be more corrosive than salt concentrations beyond 1% or 2%. A few calculations will show that 0.2 of a pound of salt placed on a square yard of snow 4 inches thick melting to one-tenth this thickness, will produce a salt brine of roughly 1% concentration. Thus, the standard application lies in the danger zone.

However, corrosion need not be a factor if the snow-removal crews use corrosion inhibitors. Two currently are available. One is the polyphosphate, Banox; made by Calgon, Inc., of Pittsburgh, Pa.; the other is a polyphosphate-nitrate-nitrite mix made by the National Aluminate Corporation of Chicago, known as Nalco 818-C. Tests at Akron, Ohio, and Rochester, N. Y., have shown that salt-induced corrosion can be forgotten if additives of this type are mixed with the salt at a 1% concentration.



The new, big dual-fuel Worthington was the fundamental reason that Le Sueur's electric plant was able to whittle down its operating costs in the face of rising fuel prices.

The Le Sueur, Minn., municipal electric utility rebuilds its plant to meet an unusual peak load and discovers some savings

Modernization Plus Dual Fuel

By M. D. GEVING
Superintendent of Utilities
Le Sueur, Minn.

IN 1951, Le Sueur began a modernization program for the municipal electric utility that serves the city's 2,700 people. Like many other such operations, both the need for additional power and the generating costs had rapidly increased. Moreover, typical of other electric generating utilities, this system had experienced a rapid load growth each year since 1944 when the backlog of power consumption created by the retarding effect of World War II began to be absorbed.

Le Sueur is located 55 miles southwest of the Twin Cities in the heart of a fertile agricultural trade area. In addition to serving this area, the power plant must supply electrical energy to the main factory of the Green Giant Company, a canning concern. Providing power for a seasonal industry presents definite problems for a municipal operation; more installed capacity is required than is normally needed to satisfy the peaks experienced when the "pack" is on.

To meet these requirements and keep generation costs within reasonable limits were the problems confronting the utility superintendent and City Council in 1951. The latest addition to the installed generating capacity had been made in 1947, bringing the total plant capacity to 2,443 kw with a firm capacity of 1,400 kw. However, this firm capacity was none too reliable since some had to be provided by 20-year-old engines. Although natural gas was available, the entire generating plant was equipped with oil-fueled diesels.

Engine Conversion

To increase generating capacity quickly, we converted an existing unit of 700-kw capacity to operate as a dual-fuel unit. Although present-day dual-fuel engine efficiencies could not be attained, nevertheless, fuel savings made the investment sound in a single year's operation. This was Le Sueur's first step in its planned modernization program.

The matter of additional jacket-water cooling equipment and a new switchboard had to be considered before additional generating equipment could be procured. The cooling equipment, in particular, was suffering because of limited cooling surface and the complications that arise with the gradual conversion from steam-engine generating units to a full diesel operation.

A new, modern, metal-clad switchboard was purchased and relocated in a wing that had been added in 1947. At the same time, we revamped nearly all of the old station piping, using plant personnel. We next purchased a Marley dry-type cooling tower and arranged for an elevated water header to serve all four existing engines and the anticipated fifth unit.

By increasing pipe sizes and using a more streamlined piping arrangement, we reduced the station power requirements for circulating water. Three existing pumps were moved from the basement and placed in a pump bay on the main operating

floor for better accessibility and ease of maintenance. The switchboard addition, rearrangement of feeders through a tunnel under a street adjoining the plant, and the installation of the cooling equipment and piping had all been completed by the time the new engine arrived.

New Engine Details

The engine selected was a Worthington Model SEHGO-8 four-cycle, dual-fuel type. It has eight cylinders providing a 16-inch bore and 20-inch stroke, and is supercharged by exhaust gas. At 360 rpm, the engine has a rating of 1,910 hp and drives a 1,350 kw, 0.8 power-factor generator, supplied by Electric Machinery.

The engine is equipped with the usual dual-fuel features: individual and adjustable gas metering valves under governor control; dual plunger fuel-injection pumps to provide for both pilot-oil service and full-oil operation; automatic switching equipment for change-over from gas to oil or oil to gas; thermal air control for maintaining a constant air-gas ratio at varying loads; and a water-cooled aftercooler.

The exhaust and air-intake piping for the engine is most simple. Both lines are carried overhead and project through the building wall above the switchboard. The air intake is particularly arranged for engine operation in the cold climate provided by the Minnesota weatherman. The Air Maze air intake filter is mounted within the building, but is designed so that air can be drawn from the outside and, by opening a sliding door on the filter housing, the cold air can be blended with the warm air of the plant.

Regardless of where the air originates, it must pass through the air filter element before reaching the silencer on the turbo-charger inlet. This arrangement has a definite advantage in subzero weather, easing the starting of the engine, and providing for better combustion particularly on light loads. A door is provided in the bottom of the filter to permit lowering of the filtering element for servicing.

At present, the air aftercooler is connected to the municipal water service. Although the periods during which it is necessary to supply the aftercooler with cooling water are relatively short, inasmuch as the temperature at the air-intake manifold need only be kept below 125° F., the aftercooler will be reconnected to the old wet-type cooling tower. With this arrangement, sufficient water of approximately 90° will be available without the present loss of city water.

Natural gas of approximately 900 BTU per cubic foot is supplied to the regulating and metering station. The two gas-burning engines each meter the gas used so that we can separate fuel costs.

The gas from the metering station passes through a Blaw-Knox scrubber, to Fischer regulators, and finally to the individual engine-fuel systems. Gas pressure is carried at 25 pounds per square inch to the regulating valves on each engine and, from that point, reduced to the required pressure of each individual engine-fuel system.

The results of this work are now beginning to bear fruit in form of savings in generating costs. The new engine went into operation in January 1953, has piled up 4,144 hours of operation in 10 months and has produced 3,362,900 kwhrs of the plant's total of 4,309,100 kwhrs, or 78% of the total. Although the engine ran at only 60% of capacity, it still operated at a fuel cost of only $0.0043 per kwhr. The cost of the natural gas was approximately 29 cents per 1,000 cubic feet.

Low pilot-oil consumption, ranging between 5% and 6% is another definite factor enabling the engine to show the low fuel costs. During the 10-month period of operation, the fuel-injection pumps have not required any adjustment from original settings even though the load given the engine was of a variable nature from low normal demands to peak conditions during the canning season.

Savings

As mentioned earlier, the cooling system for the engines was entirely revamped in preparation for the installation of the new Worthington dual-fuel engine. After the new dry cooler was put in operation and with the new piping system completed, definite reductions in station power consumption were noticed. A check into the records reveals the following savings.

Period of Operation	Kwhrs
April to July 1952	136,775
April to July 1953	94,675
Savings	42,100

Power costs us 1.32 cents per kwhr to produce. Thus the 42,100-kwhr saving, projected over a full year at this rate, gives us a comfortable dividend of $1,667.

Le Sueur's municipally operated power plant can be justly proud of its record. With sufficient generating capacity to withstand peak loads of 1,600 kw now being experienced, together with the 1,350-kw Worthington dual-fuel unit rolling up its thrifty operating record, we look confidently for a most favorable future.

The utility operates under the management of the author who reports to the City Council. Records of the plant's operation which have made this article possible are kept by E. B. Mueller.

RECORD OF PERFORMANCE [1]

Year	Fuel-Cost	Kwhrs Generated	Fuel Cost per kwhr
1949	$39,641.85	4,195,875	$0.0094
1950	39,605.55	4,637,825	.0085
1951	40,412.20	4,933,975	.0082
1952 [2]	39,009.83	5,253,150	.0074
1953 [3]	39,553.66	5,512,220	.0071
1954 [4]	16,946.38	3,417,050	.0050

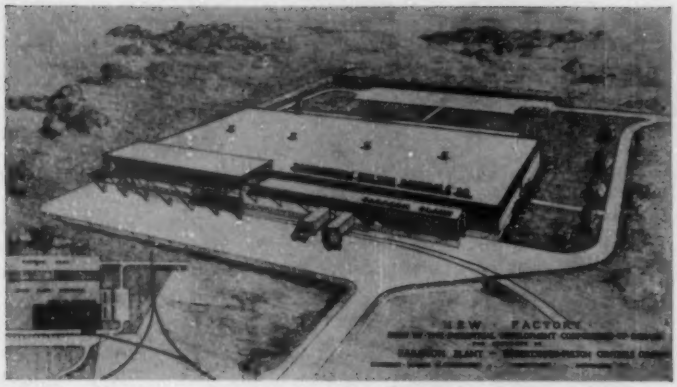
1. Accounting records for the plant are computed according to the fiscal year ending March 30.
2. 1,000-hp Fulton engine converted to dual fuel.
3. 1,910-hp Worthington dual fuel on the line.
4. Seven months.

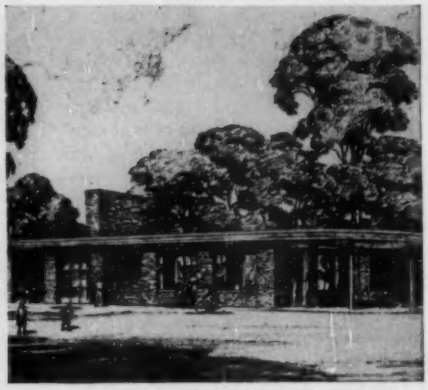
To Train Landscape Architects in Urban Design

A PROPOSAL that landscape architects be trained as urban designers comes from Reginald R. Isaacs, Chairman of the Department of City Planning and Landscape Architecture at Harvard University. Speaking at the Annual Meeting of the American Society of Landscape Architects in Boston, Professor Isaacs said:

"Urban design is receiving increasing attention by architects and city planners—yet to me it is the province of the landscape architect. What do I mean by urban design? . . . It is the physical expression of the culture of cities. . . . It is the design of its streets, squares, open spaces and civic core for pedestrians and traffic. It is my belief that landscape architecture students are the best equipped, from outlook and academic training to become urban designers. I have found in my experience that landscape architects are the least afraid of space—the best able to handle the design of volume and space to create a satisfying environment."

Professor Isaacs announced that his department at Harvard is now offering courses in urban design that would promote this role for landscape architects.





(Left) Architect's sketch of a plant built by the Industrial Development Corporation of Indiana for the Robertshaw-Fulton Controls Company. (Right) Architect's sketch of the picnic shelter in the J. S. Mack Community Center at Indiana, Pa. The Center is on a 55-acre tract and includes a race track, a ball field, and a swimming pool which was constructed at a cost of $275,000.

Indiana, Pa., Gets an Economic Transfusion

INDIANA, Pa., a town of 12,000 people located midway between Pittsburgh and Altoona, has found a way to give itself an economic transfusion.

The troubles of the area's basic industry, the mining of bituminous coal, had led to increasing economic difficulties for Indiana over the past decade. Unemployment was growing. Population was decreasing. Homes and buildings stood vacant.

The Chamber of Commerce formed an Industrial Development Committee consisting of Cecil Spadafora, auto dealer, William L. Ingersoll, local newspaper columnist and executive secretary of the Chamber, and two past-presidents of the Chamber, Lewis McGill, an auto dealer, and Mike Wida, local insurance man.

First action of the Committee was to arrange with the Bureau of Business Research of the Pennsylvania State College for a complete economic survey of Indiana County. The comprehensive study, published in July 1950, after six months of field-and-office work by the Bureau staff, cost the Chamber $600.

With the facts in hand, the Chamber's Industrial Development Committee worked out this plan: Individual nonprofit development corporations would be set up to build modern plants to be leased to new industries. The financing would be handled locally.

The plan was ambitious, but thanks to the driving enthusiasm behind it, it worked. In 1951 the Indiana Community Development Corporation was formed to build a plant for the Indiana Sportswear Company. The $271,000 involved in this venture was raised this way:

Outright cash donations	$73,000
1st mortgage carried by local banks.....	120,000
2nd mortgage bonds purchased by local business and professional people.....	78,000

Lewis McGill is president of the Indiana Community Development Corporation. In its first year of operation, the new sportswear plant paid its employees about the same amount as was raised to build the plant.

The Second Project

In March 1953, arrangements were completed for a second project. The community was well aware, as Chamber president Earl Handler pointed out, that "economic health depends on wise diversification."

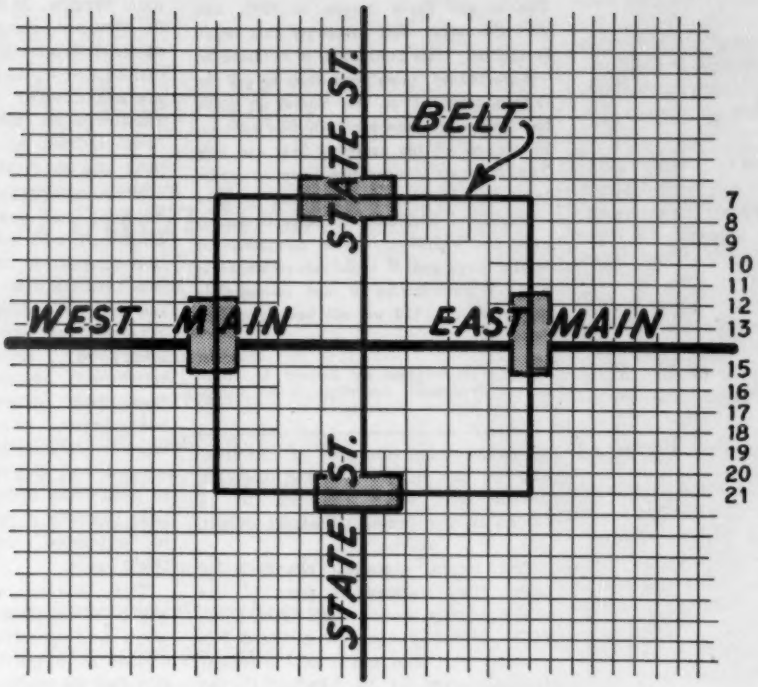
The Robertshaw-Fulton Controls Company, leading manufacturer of oven heat controls for gas ranges and water heaters, and of controls for other home appliances and for automotive and industrial use, signed an agreement to lease a new modern plant to be erected by a second nonprofit corporation, the Industrial Development Corporation of Indiana, headed by Mr. Spadafora. This time $511,000 was raised — more money than was necessary, it turned out, and some of the money is being returned. Here's where the money came from:

Outright cash donations	$23,000
1st mortgage carried by local and county banks	225,000
2nd mortgage bonds...	263,000

The new Indiana plant is part of Robertshaw-Fulton's nationwide expansion program. Among the other attractions which led the company to establish its Indiana unit are the excellent labor pool available and such assets as fine recreational facilities.

What are the results of Indiana's economic transfusion? It's a long-range program, of course, but the *Indiana Evening Gazette* reported this spring that the town has acquired 600 new citizens since 1952. Local merchants, the newspaper stated, are currently enjoying 8% more total retail sales than they did in 1951. Housing is available, with 100 new dwellings built in the past two years in Indiana and the surrounding township. The county is adding four new school buildings.

The 1954 program of the Indiana Chamber of Commerce says that "Continued efforts must be made to attract new industries, preferably small plants which are highly diversified," although there are no immediate plans for additional financing. The program points out that "the economic activity of the county is dependent on other activities which are often overlooked, such as agriculture, distribution of consumer goods, and governmental services."



Schematic map of any city with encircling freeway belt and parking lots located along it. All throughways enter the belt and proceed to appropriate point for continuation, thus avoiding the business district. The result is less congestion.

To Spark National Highway Program

Play ball with the bottlenecks—the cities—by making them as wide as the bottle

MANY powerful agencies are urging the rebuilding of the nation's highway system. These include the automobile and truck manufacturers, the automobile-trucking interests and associations, civil defense organizations, labor unions, and manufacturers and economists who desire a continuation and enlargement of prosperity.

A vast and heavily financed propaganda program toward this end is not carrying the general public along with it. The public imagination is not thrilled by an elaborate program of more of the same—more and wider superhighways, highways, and streets; higher speeds; more traffic accidents, and more congestion.

More of the same will never put over this program on the large scale envisioned by its proponents. More highways of all kinds will be built, but by main strength rather than as part of an enthusiastically backed public plan. "New look" is a cliche, but it does seem that what is now needed is a new look at the over-all purpose, rather than at the immediate objective of accommodating and facilitating the travel of more and more vehicles.

The Spark

The over-all purpose is to permit these vehicles to function efficiently and comfortably in modern society, which is so dependent on them. The place to start is in the cities and towns. Most of the vehicles are coming from cities or going to cities, and most of these cities are in something of a panic already. They are beginning to ban parking in the business districts. They are beginning to distinguish between short-time parking for business purposes and long-time or all-day commuter parking. A solution has been offered them which may also turn out to be the spark needed to fire the public imagination in favor of an over-all highway plan which includes orderly progress of vehicles inside the cities as well as over the roads.

The working of the plan can be seen by examination of three maps showing how it would apply in Rochester, N. Y., population 333,000 (THE AMERICAN CITY for April 1954, cover and pages 133 and 137); Quincy, Mass., population 85,000 (THE

AMERICAN CITY for June 1953, pages 94 and 95); and Riverton, N. J., population 2,800 (THE AMERICAN CITY for August 1953, pages 147, 149, and 151).

There are three steps. The first is a limited-access freeway around the business district at which all through highways either stop, or pause, at a parking area.

The second step is to prohibit long-time parking in the business district and provide for it along the freeway, preferably on both sides of the freeway to permit choice of direction in parking.

The third step is for larger cities, which locate the circumferential freeway far enough from the center of the city, to acquire public-transit connections with the parking areas.

Highways Use the Belt Freeway

The purpose of a state highway passing through a city is to get from a point outside the city to another point on the other side of the city, and to permit those using the highway to stop in the city if they so desire.

When a belt freeway around the business district has been provided by the city, the purpose of a state highway is to connect with the belt at the most convenient point on it commensurate with lowest cost, including condemnation and public opposition, and to leave the freeway and continue to the next destination at the most convenient and lowest-cost area.

Motorists on the highway who desire to stop at the city, may park along the freeway and walk into the business district or take public transit, if more convenient.

In the example shown in the schematic map, the most desirable (direct) route might be to enter the city at East Main Street, continue straight through and exit on West Main Street, with an intermediate exit for motorists desiring to stop over, at Main and State Streets, in the heart of the business district.

Having the city's belt freeway as local destination, the state highway can enter from the east on any street from East 7th to 21st, selecting the street with least complication. The highway can leave the freeway by any street on the west side of the city.

In addition to saving money and grief in construction costs, litigation, resentment of residents ousted from the right of way, space wasted in the high-value district, and increased congestion, the state will save the heavy construction costs of building highways from one side of the freeway to the other. In the diagram shown, this would amount to 15 blocks in the densest district of the city.

The extra distance entailed by using the freeway as part of the new highway would vary from zero, if the highway entered at East 7th or East 21st and continued straight through — up to 14 blocks, if the highway entered at East 7th and left the freeway at West 21st or entered at East 21st and left at West 7th. The prior provision of parking facilities along the freeway would be a further determining favorable factor.

Just as a railroad is no good without stations that give it purpose and prosperity, so must a highway serve and be served by urban destinations that facilitate its through traffic and local service. With every city a traffic strainer, congestion in the high-value district will be greatly reduced due to the virtual absence of through and commuter traffic. The result should be an upbuilding of the business district as a mecca for shopping and entertainment.

With accessible long-time parking outside the business district, tall buildings will not generate automobile congestion in the district. With less automobile traffic, truck loading and unloading operations can be arranged on an economical scale. Everybody, including commuters, truckmen, visitors, local businessmen and national manufacturers, contractors, consulting engineers, workers, public transit, and the municipal tax department have much to gain from orderly traffic handling that permits a rehabilitated, instead of "exploded," central business district.

THE AMERICAN CITY, therefore, urges all agencies advocating highways and superhighways nationwide, to lose no opportunity to help every city put its traffic house in order, so that it may gain the most profit from being a station in the national highway system. Thus, will the modernization of existing roads and highways and the location of new highways be simplified in their approach and progress through the towns and the cities.

THE first gasoline automobile was driven down the streets of Springfield, Mass., by Charles and Frank Duryea, in 1892, and soon thereafter other passenger cars began to appear. Mass production of automobiles was started by Henry Ford when he put the famous Model T on the market in 1908. Last year more than 6,000,000 new automobiles came off the assembly lines and only 3,000,000 cars in operation were scrapped. In another 15 years we can expect to have in excess of 80,000,000 vehicles operating over our highways. Traffic congestion is fearful now, and if rapid advancement in highway construction is not immediately instituted, by 1970 we will have complete chaos.

From an address by Robert M. Reindollar, President, American Road Builders Association, Washington 6, D. C.

Weights and Measures Report Wins Acclaim

THE recently published 1953 annual report of the Weights and Measures Department of the City of Newton, Mass., has received high praise from state, national, and even international authorities in the weights and measures field.

The report, a 19-page document, prepared by J. Ellis Bowen, Sealer of Weights and Measures for Newton, explains the functions of the Sealer, records in graphic and tabular form the results of the inspections accomplished during the year, and presents other information that helps tell the story of the workings of the department.

The importance of municipal control of weighing and measuring devices is well explained in the report as follows:

The public is today more than ever quantity conscious. The increased cost of living, the difficulties of making income and expenditures balance, the compulsion to stretch the dollar, have caused most consumers to select their purchases with the thought of getting the most for that dollar. High prices are a most convincing argument that ounces, pints, quarts, and yards are dollars and cents. It is axiomatic that how much you get is of equal importance to how much you pay. To receive short weight or measure is equivalent to receiving counterfeit money in change.

To give short weight or measure is a two-pronged evil. It not only cheats the purchaser, but provides unfair competition by offering a means of underselling an honest competitor.

Standards of weight and measure, together with the enforcement of laws relating thereto, is a necessary and integral part of economic progress and affords an invaluable and equal degree of protection to all who either buy or sell commodities.

Copies of the report can be obtained from the Department of Weights and Measures, City Hall, Newton, Mass.

Winston-Salem

Turns A Fumble Into A Touchdown

By keeping an R. J. Reynolds offer on ice and adhering to a "private enterprise first" policy of getting new downtown parking facilities, this North Carolina city is doing the job without financial outlay by the municipality. . . . Yet the power and influence of the city government will remain to assure needed downtown parking

By ALFRED G. IVEY, *Associate Editor*
JOURNAL AND SENTINEL, *Winston-Salem, N. C.*

The stores marked for razing extend, on the right above, half a block above the Zinzendorf Hotel. The Reynolds Building, home of R. J. Reynolds Tobacco Company is in background.

MANY people were surprised when an offer by tobacco heir R. J. Reynolds to build parking centers in the middle of downtown Winston-Salem was not immediately accepted by the city's Board of Aldermen.

Mr. Reynolds proposes to tear down valuable business property he owns in the heart of the business district of the tobacco and textile manufacturing city and to build up-to-date parking centers in an effort to stabilize property values and squash a trend towards investment in outlying shopping centers far from the downtown area. Mr. Reynolds is willing to sacrifice much of his commercial property in order to preserve the value of other buildings he owns.

Mr. Reynolds makes his proposition contingent upon one thing: After he builds the parking facilities at his own expense, he wants the city to manage them, at a profit to the city.

Winston-Salem has neither accepted nor rejected the offer. The proposal is pigeon-holed temporarily, at the request of Mr. Reynolds. His asking for postponement of any action on his offer by the Board of Aldermen was a discreet political and economic maneuver. For his proposal ran into formidable snags.

Private Enterprise First

In the first place, a Parking Authority, appointed by the city, with power to develop new parking facilities in Winston-Salem, had previously adopted a policy of "private enterprise first" in solving the city's downtown parking dilemma. The Parking Authority hopes to encourage private investors and private garage owners to build all the parking spaces needed, with no financial assistance from the city. The Parking Authority proposes to give private groups plenty of time to do the job. However, if after a reasonable length of time, there is still insufficient off-street parking in downtown Winston Salem, the city will itself condemn land, acquire property, build lots and garages, and operate them.

Several members of the Board of Aldermen favor the plan of the Parking Authority.

R. J. Reynolds does not prefer to cross the Winston-Salem Parking Authority, and rather than force a showdown, he asked the aldermen not to take action on his proposal until further notice.

Ordinarily a stymied attempt of a philanthropist to furnish a much-needed public improvement might be cause for dismay. But instead there is rejoicing in Winston-Salem. For since the Reynolds offer and since the Parking Authority policy announcement, an unprecedented amount of parking construction plans have been started, all by private groups. Where a year ago the outlook for off-street downtown parking looked dismal and the Wilbur Smith Company, traffic engineers, found a deficiency of 800 spaces to meet immed-

How to choose your steel supplier

Now that we are again in a period of plentiful steel supply, production and fabricating departments can again place first emphasis on higher standards of materials and service. And buyers can choose their suppliers on the basis of character and ability to serve. With this in mind, the following check list may prove helpful.

FIRST, on the character and capacity of the supplier:

☐ Is the supplier a good dependable company with a wide range of steels actually in stock so I can take full advantage of quantity differentials and save time in ordering and other office details?

☐ Am I establishing a business relationship with a company which will be able and willing to supply me with steel at fair prices next month or next year—even if demand should again exceed supply?

☐ Can I return material if it has not been processed and I find that I can't use it?

☐ Can I count on the supplier to settle any reasonable difference of opinion to my satisfaction? Is the supplier customer-minded?

☐ Does the supplier have, not only the interest, but also the ability to carry my account in times of national stress or possible financial difficulty?

SECOND, concerning the material:

☐ Is the steel of *known, uniform quality* so that I can depend on good performance and can be sure of getting steel of the same uniform quality next month or next year?

☐ Is the steel accurate as to size or gauge so that no time is lost in extra processing? Is scrap minimized or eliminated?

☐ Is the steel in good condition? Has it been carefully stored, handled and shipped so that it will arrive ready for use?

THIRD, concerning the service:

☐ Can I depend on clean accurate cutting so that the steel will be immediately available for use without further cutting or preparation?

☐ Can I be sure of correct weight?

☐ Will the steel be delivered when promised so I will get it when I need it, even on very short notice?

No source is perfect, and we certainly do not pose as such. However, we have been serving industry—with good sound steel from stock at fair prices—for over one hundred years. And we have been working with our customers through the years in many other ways from helping with finances to solving problems of fabrication and inventory control.

And it goes without saying—we stand ready to serve *you* well whenever you call.

Principal products: Bars, structurals, plates, sheets, tubing, alloys, stainless, reinforcing, machinery & tools, etc.

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI • CLEVELAND DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

iate requirements, today new lots and plans for double-deck garages are springing up.

In the weeks since Mr. Reynolds made his offer, seven new parking expansions have been announced. Here are developments since April:

1. A 250-car double-deck ramp-type garage now being built in the warehouse district, a block from the central business district.

2. Expansion of facilities at an already-established downtown garage.

3. A new 150-car garage to serve customers of the Anchor Company.

4. Razing an old chewing-tobacco factory to make room for another 50 cars at an existing 130-car lot.

5. A 100-car lot on the fringe of the business section.

6. A new business center, two blocks from the main business section, to furnish off-street parking for 100 cars.

7. A 200-foot-by-200-foot lot for all-day parkers being made available near the telephone company.

Besides these developments, there are others which are expected any day, according to Archie Davis, vice-president of the Wachovia Bank and chairman of the Parking Authority.

So it appears that by a combination of a threat and a promise, Winston-Salem is getting what off-street parking it needs and in less time than had been expected. The city of approximately 100,000 inhabitants has an unusual traffic situation. Parking troubles are intensified by the fact that the business district is immediately adjacent to the industrial area. Consequently, industrial employees vie with shoppers in rushing for available parking spaces downtown.

Winston-Salem now is at a crossroads — or more realistically expressed, at a "five-points intersection" in making a choice about parking. These choices are:

1. Let private enterprise do it, with the city keeping hands off.

2. Let the city acquire, build, and run parking centers.

3. Have the city acquire land, build the facilities and lease them to private operators.

4. Let private interests (like R. J. Reynolds) build the facilities for the city to operate.

5. Do nothing and hope for the best.

Winston-Salem will not follow this last course. Something definite is being done. The Parking Authority is "standing by." The present splurge of parking expansion may not be enough. More private action may be necessary to take care of an expected increase in business and traffic forecast by the Wilbur Smith Company, if and when Winston-Salem betters its parking and traffic situation.

The R. J. Reynolds offer is in abeyance. Mr. Reynolds may not even find it necessary to demolish some of his properties to protect the others. And there are influences at work to encourage him to do the entire job himself, rather than to go into partnership with the city, if he should wish to go ahead with the off-street parking plans.

Meanwhile off-street parking construction in Winston-Salem is looking up.

New Map Arrangement Aids City-County Officers

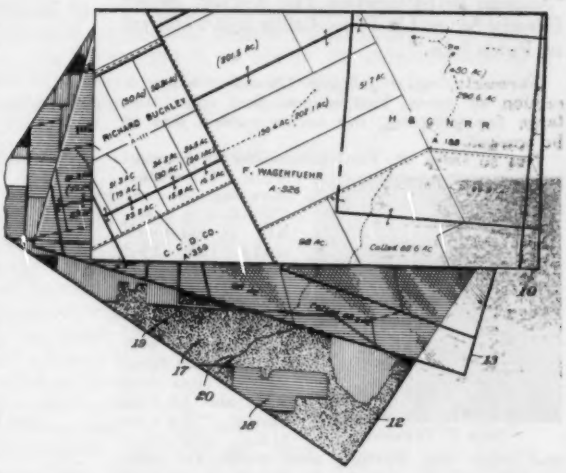
By W. R. BOOTHE
Boothe Company, Inc.
Greensboro, N. C.

GROWING OUT OF the recent development of improved and accurate aerial photography has come the use of photographic maps in city-county offices for inventory and evaluation of real property. The model map arrangement installed in Angleton, Texas, in the modern Brazoria County Court House, is an example of the Boothe Plat Book arrangement patented by Z. J. Boothe, Jr., and made through Kargl Aerial Surveys.

Built to meet the need for maps delineating both physical features of terrain and accurate ownership information, the finished product is in the form of a transparent film positive scaled to overlay accurately a print of aerial photographic mosaic for that section of the earth's surface.

The boundary lines, acreage, and current fee owner of each tract of land along with planimetry are shown on the film positive. Conventional mapping standards are used and each line on the transparent film positive is correlated with evidence of ground occupancy on the aerial photographic print. The aerial photograph is not marked in any way; thus it may be studied in its natural state or with the overlay if ownership and planimetric information is desired. In combination the boundaries and improvements on each tract of land are easily ascertained and every parcel of land is accounted for.

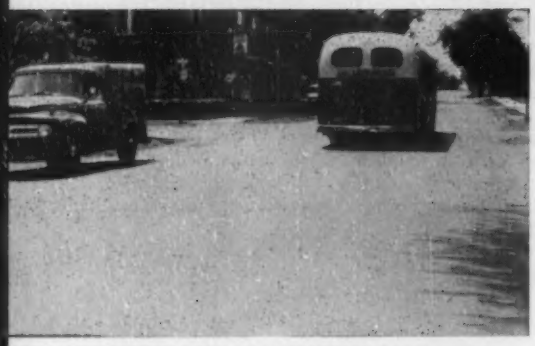
Similar map arrangements may be obtained from the Boothe Co., Inc., in Greensboro, N. C.



Features of the Boothe Plat Book arrangement in Angleton, Texas, are illustrated in the photograph above. Bottom sheet is an aerial photograph, which is mounted on masonite or some other strong light material. The photograph records all land development and in this example shows a road (19), forest (17), stream (20), and area under cultivation (18). The middle sheet is a transparent overlay made at precisely the same scale as the aerial photograph and shows invisible features such as acreage boundary lines, names of current fee owners and planimetric data. Both sheets used together present all the information essential to tax work, real estate operation, oil and mineral exploration, industrial development, and leasing operation. The top sheet is a blue line print made from the overlay. It can be used as a work sheet.

CASE NO. 61854

ST. PAUL SAVES TIME, MATERIAL ON ITS STREETS

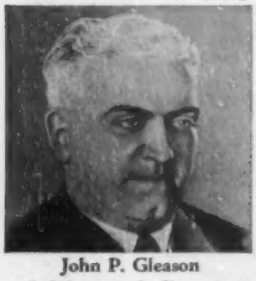


JOB HAD TO BE DONE RIGHT! Shown here is a portion of the completed 9.5 mile resurfacing project on oil-type Forest avenue in St. Paul which is subjected to daily pounding by buses with a loaded rear axle weight of 23,600 pounds.

"Seaman Self-Propelled Trav-L-Plant Mixer Greatly Saves Us Time, Labor and Material on Patch Jobs."

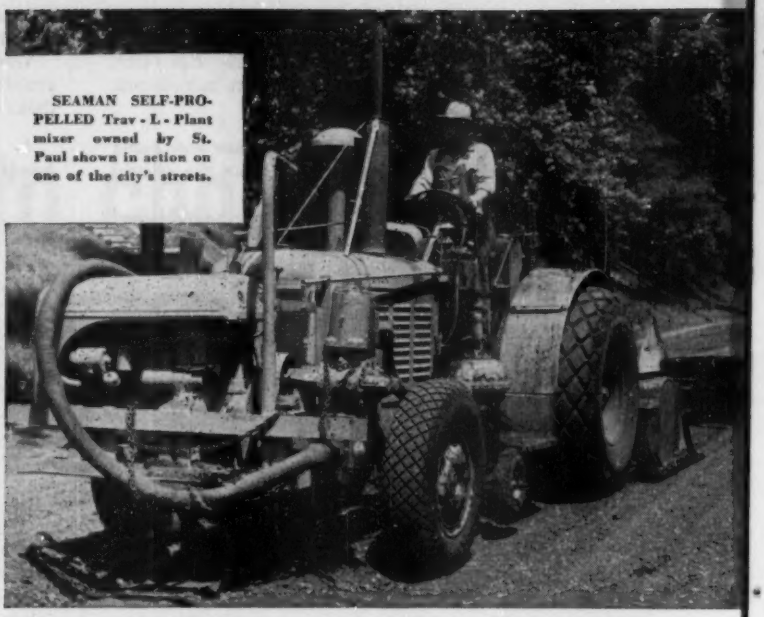
Formerly, says Johnny Gleason, when a section of street had several bad spots, too large for patching, the entire section had to be worked.

Not so since St. Paul purchased its Seaman Trav - L - Plant. Now, says Johnny, "We find it possible to disturb only the bad spots, treating each as required." He adds that the Seaman Trav-L-Plant works well on any spot larger than five feet wide and 12 feet long. "Saves time, material and labor and disrupts auto traffic for only short periods."



John P. Gleason

John Gleason has been St. Paul's Supervisor of Street Maintenance since 1945. He joined the department in 1929 as a district foreman, later served two years as a Chief Petty Officer with the World War II Navy Seabees in the South Pacific.



SEAMAN SELF-PROPELLED Trav - L - Plant mixer owned by St. Paul shown in action on one of the city's streets.

REBUILDING 9.5 MILES OF STREET:

Heavy Rain And Wet Going Made Easy With Seaman Trav-L-Plant

A Seaman self-propelled Trav-L-Plant mixer prevented headaches last summer for John P. Gleason, Supervisor of Street Maintenance for the city of St. Paul.

In addition to the department's regular heavy work schedule of maintaining 484 miles of oil-type streets and 97 miles of alleys, the ripping out of streetcar rails and ties on a 9.5 mile stretch of oil-type street left a low, unstable center. This center was composed of old patch, granite blocks and much oversize. Clearly a complete stabilizing, resurfacing and resealing job was in order.

Work began on May 18—and oh, how it rained, threatening to halt the project. By job's end, rainfall was 5.72 inches ahead of normal.

But despite this, work ended successfully on Sept. 15, "due, I believe," says Johnny Gleason, "to the fact that we purchased one self-propelled Seaman Trav-L-Plant mixer for the job." The city already owned three tow-type Seamans.

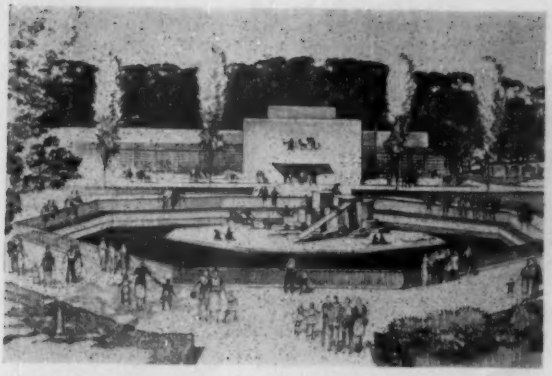
Johnny adds further praise: "The combination of Seaman Trav-L-Plant and an anti-stripping additive in the road oil to combat rain and moisture did the job."

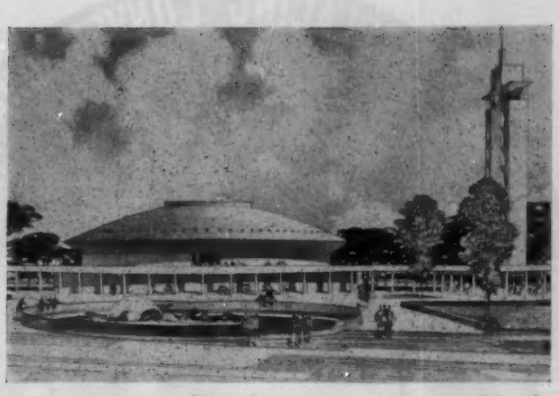
Expert service by Borchert-Ingersoll technicians during and following delivery of the Trav-L-Plant impressed Frank D. Marzitelli, Commissioner of Public Works. "We appreciate their help," says the Commissioner who was appointed on Dec. 1, 1952 and is now serving his third term on the St. Paul city council.

Frank D. Marzitelli

This work was completed under the direction of Mr. George M. Shepard, Chief Engineer, and Mr. George M. Garen, Superintendent of Construction and Repairs, City of St. Paul.

SEAMAN MOTORS, INC., 292 N. 25th St., Milwaukee 3, Wisconsin





(Left) Proposed Monkey House and Monkey Island are to be located directly in front of the main gate of the improved Franklin Park Zoo. Persons entering will thus find an exhibit of immediate interest and popularity. (Right) The Reptile House and Observation Tower are to be the focal points of the zoo. Plans for the zoo were prepared by the firm of Arthur A. Shurcliff and Sidney N. Shurcliff, Landscape Architects and Town Planners. The sketches shown above were prepared by Shepley, Bulfinch, Richardson and Abbott, architectural consultants.

Boston Plans Improved Zoo

Suggested 20-year development plan features exhibits appealing to children

THE future construction of a monkey island, reptile house, children's zoo, miniature railroad, and penguin pool are among the proposals contained in a 20-year improvement and expansion program for the Franklin Park Zoo in Boston, Mass.

The proposals have been prepared for Mayor John B. Hynes and the Boston Board of Park Commissioners, Frank R. Kelley chairman, by the firm of Arthur A. Shurcliff and Sidney Shurcliff, Landscape Architects and Town Planners. The purpose of the program is to expand the variety of animal and bird exhibits located at the zoo and to arrange them in a way that will arouse a continuing interest to visitors.

The existing zoo, which is served by public transportation lines connecting it with all parts of the city, was originally planned by Frederick Law Olmsted as a part of his design for Franklin Park. Actual construction was undertaken in 1912, with the building program based on a detailed development plan prepared by Arthur A. Shurcliff, senior partner of the firm that has prepared the new expansion program.

Monkey Island

The principal new exhibit is to be a monkey house and a monkey island to be placed directly in front of the main gate so that persons who enter the zoo will find themselves immediately rewarded by a popular and ever-changing feature.

The island will consist of an octagonal reinforced concrete pool 90 feet in diameter containing water to a sufficient depth and width to discourage the monkeys from escaping, with an artificial island of interesting shape in the center.

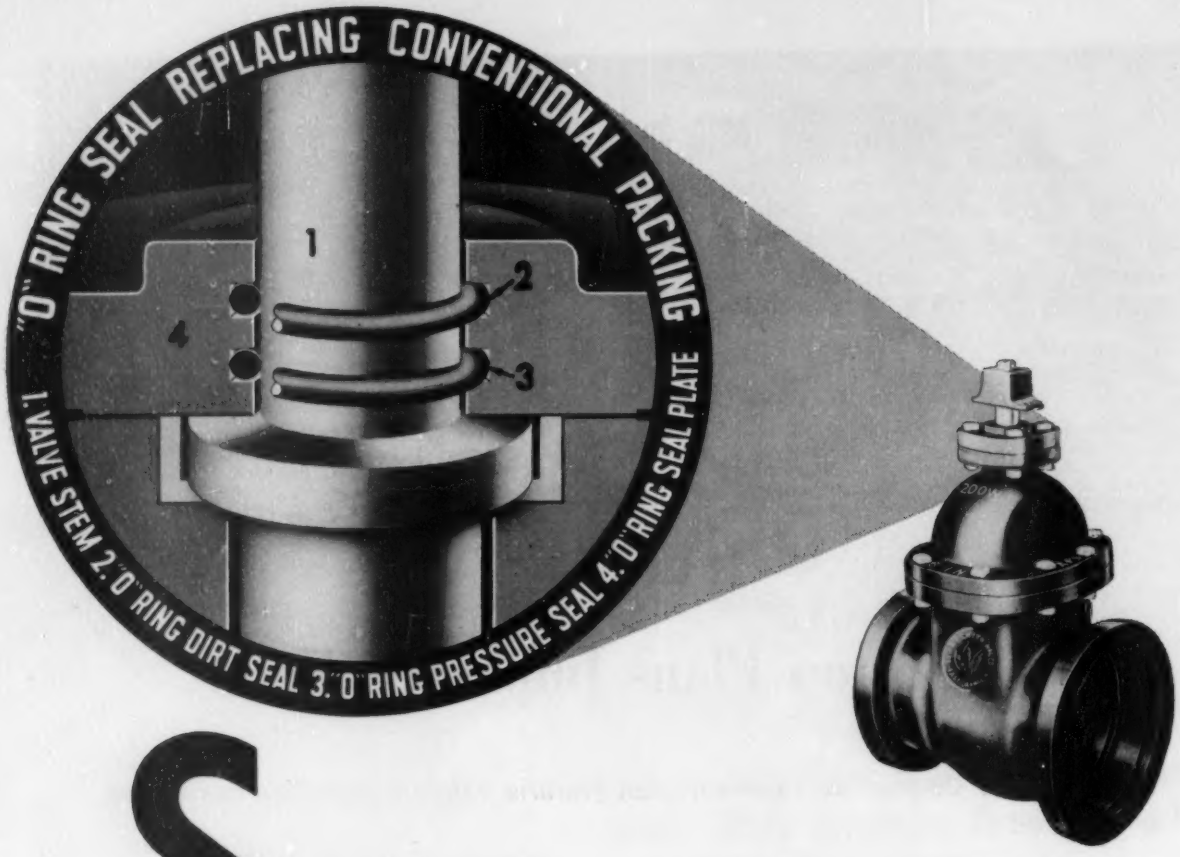
The focal point of the improved zoo is to be a circular-shaped reptile house to be located at the midpoint of a 2,100-foot mall called the Greeting, which extends the full length of the zoo park. The structure will be 90 feet in diameter, two stories in height and will be topped by a low, rounded roof and encircled by a 26-foot-wide terrace and balcony at the upper level. This terrace is expected to be one of the chief features of the expanded zoo. From it one will be able to look along the main vista to the north and south.

Children's Zoo

The children's zoo, patterned after those which have become popular at the Bronx in New York, Brookfield near Chicago, and Regent's Park in London, is to occupy an area of approximately 28,600 square feet just off the central mall. Just behind this feature will be a group of wooden buildings to be known as the "Farm in the Zoo," to display in a typical farm setting domestic animals rarely seen by city children. It will also serve as living quarters for the animals exhibited in the children's zoo.

The miniature railroad, similar to ones used successfully at the Cleveland and other zoos, will also be located near the children's zoo. A 24-inch gauge track with all equipment scaled at one-third full size is planned.

Other features of the expansion program include the construction of a sea lion pool, raccoon pit, otter pool, small mammal house, pheasant runs, giraffe house, vulture house, fox and wolf dens and, possibly, an amphitheater to display trained animal acts. The plan also calls for complete fencing around the zoo to protect the exhibits and to control admissions, should charges be required. A 1,200-car parking lot to be located near the main northerly gate of the zoo, is also part of the plan.



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When specified, "O" Rings replace conventional packing and reduce maintenance to a minimum. The lower "O" Ring (#3) is the pressure seal. The upper "O" Ring (#2) the dirt seal. The initial compression of the "O" Ring provides the seal when the valve is closed. When subject to water pressure the lower "O" Ring is forced to the top of the groove. The sealing force increases as the pressure increases. The "O" Ring seal construction eliminates packing, the packing gland, gland adjustment and gland bolts and nuts. All Smith Valves can be equipped with "O" Ring Seal plates. Write for details.

45

FIRE HYDRANTS · VALVES · SINCE 1896

THE A.P. SMITH MFG. CO.

EAST ORANGE, NEW JERSEY

Relation Between City Council And City Manager

By M. W. SLANKARD
City Manager
Coronado, Calif.

THE ORDINANCE creating the office of City Manager of the City of Coronado specifically states that the City Manager act as the purchasing agent, as follows:

> He shall purchase for the said city and the several officers and departments thereof, including the Police and Fire Departments of said city, subject to the approval of the City Council of said city, whatever materials, stationery, supplies, appliances, apparatus, and machinery, that may be requisite and necessary for said city, and the several officers and departments thereof; the same to be purchased only upon proper requisition thereof made by the officer or head of the department requiring the same, provided that the provision of this section shall not apply to the purchase of any materials, stationery, supplies, appliances, apparatus or machinery the cost of which shall not exceed the sum of Five Hundred Dollars ($500) and provided further, that the above materials, stationery, supplies, appliances, apparatus or machinery are contained in the annual budget.

The first matter of business that I took up with the City Council on my arrival as city manager, was the policy regarding spending. It is my opinion that in any city, whether it be a new city manager city or one with a change in city manager, there should be a meeting to discuss policy, of which purchasing is very important. The following decisions reached in outlining policy, to be observed by the city council and the city manager, are outlined below.

First, there must be a detailed budget drafted by the city manager's office and presented to the city council in open meeting for adoption. Past experience has evidenced the need to make this document known to the public as well as to the council. After adoption the annual budget acts as a guide.

Purchases are made upon requisition by the department head and approval of the city manager, who is the representative of the council. An audit is made of the department's request, discounts, and price, followed by a look at the budget to determine whether or not sufficient funds are available for the purchase. All emergency funds not specifically set out in the budget, are presented to the city council for approval.

Factors Being Studied

The city council recently entered into a contract with a consulting firm that is presently making a study of Personnel and Management methods of various departments in the city. Three subjects of significance are:

1. Positive and long-range financial management
2. Effective supervision and planning of public works activities
3. A clear-cut separation of responsibilities for policy making, between the city council and city manager.

The City of Coronado has entered a most critical era of its history. The city has extensive untabulated needs which are outstanding. Studies are under way for improvements to our small-boat harbor, police station and jail, for curb and sidewalk replacements, swimming pool, municipal building, and a regulation 18-hole golf course. The general plan is to transfer as much city expense as possible from general taxation to the functions that pay their cost.

The city manager should be responsible for all administrative matters, and the city council should not participate in administrative decisions or investigations delegated to the city manager for his consideration.

The city manager should keep the city council informed of the city's financial condition, city work activities, services, properties, and personnel problems. He should be required to keep the council fully informed of all matters relating to public opinion, and make written recommendations concerning current matters which will keep the representatives of the people up-to-date. He should be empowered to organize the functions and activities under his direction, not to exceed six departments which may be as follows: purchase and finance, personnel, public safety, recreation and parks, public works, and planning.

Important Aspects of the Job

A big part of the job of the city manager is to understand the problem of the city council. City Councilmen are selected by the citizens, from private industry and in the beginning have limited knowledge of municipal affairs. Yet, these men have their own ideas and these change with the election of new councils. The city manager must agree to the council's policy, try to point out tried methods, and make the councilman feel that he is doing a good job for the citizens who put him in office.

Issuing news is most important. It should be at the discretion of the mayor, the city council, or the city manager to give out news.

IF your town has held off installing compaction-type refuse collection because you felt this modern system too expensive for the number of people you have to serve — note these reports from 3 small Pittsburgh (Pa.) suburbs.

Here's proof that EVERY community can afford modern refuse collection

RANKIN — a city of 7,000 — used to collect refuse with the equivalent of 2½ open-type trucks with crews (2 community-owned trucks and 6 men worked a full schedule *every* week . . . 1 rented truck and 3 men worked every *other* week). Now, *one* 9-yard St.Paul Pax-all, with a driver and 2 collectors, handles the entire refuse collection on a 5-day, 40-hour week. Each home is serviced once a week.

LEETSDALE — a town of 2,500 — and **EDGEWORTH** — a town of 1,500 — each operated 2-open-top trucks and 6 men. Each is now able to do the job with one 9-yard Pax-all and 3 men. Leetsdale makes its all-home collection in 3 working days a week . . . Edgeworth in 2. In spare time, both communities use their collection crews for other work around town.

Comparison with old system

Initial purchase of the *enclosed* compaction-type Pax-all over *open-type* trucks was made by these 3 communities because:

1. As the above report shows, 1 Pax-all handles the *complete* refuse collection job more efficiently than 2 or more trucks.
2. Savings in labor, equipment and other operating expenses easily pay for the Pax-all in less than 6 months.
3. Fully enclosed Pax-alls provide cleaner, more sanitary refuse collection . . . eliminate complaints formerly caused by flies, blowing papers, and stinking, dripping, germ-laden garbage.

Town	Formerly used	Now use
RANKIN (pop. 7,000)	3 trucks 9 men	1 Pax-all* 3 men
LEETSDALE (pop. 2,500)	2 trucks 6 men	1 Pax-all 3 men
EDGEWORTH (pop. 1,500)	2 trucks 6 men	1 Pax-all 3 men

Comparison with similar units

Pax-alls were chosen over other compaction-type bodies because:

1. Pax-alls *cost up to 30% less to buy* than any similar unit.
2. Pax-alls mount 84" C/A truck chassis, which saves an additional $300 per unit over larger sizes needed for other bodies.
3. Pax-alls' lighter weight assures *accumulative* savings in gasoline, tires, taxes etc.
4. Pax-alls' simplified compacting mechanism, plus use of only *one* hydraulic cylinder for handling all loading, compacting and dumping assures lower maintenance costs than on any other loader.

For additional information, contact your local St.Paul Distributor. Just write St.Paul Hydraulic Hoist, Customer Service Dept., 36125 Main St., Wayne, Michigan.

*Pax-all is the registered trademark of St. Paul Hydraulic Hoist SP-PC-6

St. Paul HYDRAULIC — Pax-all* refuse collection systems

How Water Rates Make a Business of Water Works

. . . and at the same time assist in providing the governmental function of fire protection

METERED rates put a city's water supply, whether operated as a municipal service or as a privately owned utility, into both *proprietary* and *public safety* categories. The system takes on proprietary characteristics because it supplies water as a business. It makes a charge for certain volumes of water supplied for domestic, commercial, and industrial use, and this charge has to be great enough to make the business of water supply self-supporting.

In most cases, the customer buys a known amount of water and pays for it at an established rate. Water meters make the measurement of this water a precise and accurate operation. Even when a city uses flat-rate charges, it tries to base them roughly on the amount of water used. However, it cannot help but proportion the charges awkwardly.

Self-Supporting

Virtually all water works strive to be self-supporting. Because of its great capital investment, it cannot be expected to operate except as a monopoly. All water users accept the principle that they should pay for this service at an established rate. In the United States, a small shack near the railroad tracks pays on the same scale as does the luxurious mansion on the hill. The value of the property plays no part in the proprietary phase of water-works operation.

Water supply takes on a public safety function because it offers protection from fire to the lives and property of the people it serves. When a fire threat occurs, a city's water works is ready to give unstintingly of its supply. It asks no questions about the quantity required, but guarantees ample volume at reliable pressure.

When designers build a system, they use extra-size mains, provide substantial amounts of water in storage units, and increase the capacity of the pumping stations.

Fire-Protection Charges

Obviously this increases the cost of water supply beyond the sum that would be required for purely proprietary purposes. Privately owned water works make a separate charge to the cities they serve for this fire protection. At best, it is a difficult rate to establish; the historic Metcalf-Kuichling-Hawley formula still is used as a guide. Many cities, particularly the smaller ones with municipally owned systems, do not bother with fire-service charges at all.

When the charges are used, they often take the form of flat monthly or annual rates based on each fire hydrant in the system. However, in recent years, many of these have taken into account the increased size of the mains required for this fire service.*

Since water works are a type of business, some cities carry it a step further and create "boards of directors." These generally are appointed by the mayor with the approval of the city council under the theory that they will operate this water-works business "without political interference."

However, boards are not necessarily symbols of excellence in water-works management. Many fine municipal water works operate within the framework of the ordinary municipal government.

The water works at Atlanta, Ga., is one example. The mayor and city council fix the rates with the advice of the water-works manager; the manager turns all revenue over to the city's general fund; he then presents a budget to the mayor and council for approval and for financing from this general fund. Nevertheless, in most cases, water-department funds remain separate from the balance of the city income.

The courts themselves have recognized the dual character of a municipal water works as both a utility and a governmental function. Court decisions have held that a municipality has the right to operate services of this nature that ordinarily would be classed as a business without divesting itself of governmental characteristics.

Water Rate Earnings

Most water rates provide an income great enough to meet operating costs, and bonded indebtedness, and often to supply funds for a depreciation reserve. If the water works is municipally owned, the law generally does not require the payment of taxes. However, many make a payment in lieu of taxes, thus putting themselves on the same basis as a privately owned utility. Some go further and provide an additional payment to the general fund which is roughly equivalent to the dividends that they would earn if they were privately owned.

Nevertheless, most water works do not go to such lengths. To simplify matters, they dedicate all revenues to the support of the water department, thus making bonds guaranteed by water-rate earnings more attractive to those who purchase revenue bonds needed for enlargement of the system.

The public recognizes water supply as a business, yet one that furnishes the vitally important governmental function of fire protection. The rates used in our cities today provide the link between the two interests.

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* EDITORIAL NOTE: In a future installment of this series, THE AMERICAN CITY will analyze these fire-protection charges in more detail.

See page 137 for fifth installment of Modern Water Rates.

2-WAY RADIO MULTIPLIES PATROLMEN'S EFFICIENCY

New Portable Field-Fone Provides Instant Contact with Headquarters, Other Patrolmen or Squad Cars

This smaller and lighter weight, self-powered radio is now easily carried everywhere. Clear FM voice conversations can be carried on over surprisingly long distances with a unit less than half the size of comparable equipment.

The extreme compactness of the Field-Fone is achieved through miniaturization of parts and the use of printed circuits. Nothing has been left out to impair the excellent performance of either the transmitter or receiver.

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The Pak-Fone is a complete communications center. It may be plugged into an ordinary 115 volt AC power circuit, attached to an automobile storage battery or operated from its own self-contained batteries. In any emergency, the Pak-Fone is ready for instant vital service. Loud speaker reception.

Field-Fones and Pak-Fones will be demonstrated in your city upon request. Write for complete details.

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Modern Water Rates

PART V

PAINESVILLE, OHIO

Rates Per Month

Volume of Water (in cubic feet)	*Metered Charge* (per 1,000 cubic feet)
First 2,000	$2.40
Next 4,000	2.00
" 4,000	1.50
Excess	1.20

Miscellaneous Regulations

1. City makes a monthly minimum charge of $1.00.
2. Out-of-city rates run 10% to 25% above those listed.
3. City makes no restrictions on water use either for air conditioning or lawn sprinkling.
4. No separate charges exist for fire protection.

General Data

Population served..... 37,000
Services (100% metered)..... 9,408
Hydrants..... 467 in city; 700 outside city
Valves..... 1,076
Miles of mains..... 545
Supply—Lake Erie
Treatment—alum, lime, carbon, filtration, chlorination
Storage facilities—1,000,000 gallons in covered reservoir
Average demand..... 3 mgd
Plant capacity..... 4.5 mgd

Typical Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.00
5,000	667	1.68
10,000	1,333	3.36

Remarks

1. Rates outside the city have increased 30% in the past five years.
2. City owns all water meters; places most of them in a meter box at the lot line; checks meters for accuracy once every seven years.
3. City uses Burroughs automatic machine to process all bills.

PAUL D. COOK
City Manager

THIBODAUX, LA.

Rates Per Month

Volume of Water (in gallons)	*Metered Charges* (per 1,000 gallons)
First 5,000	$0.40
Next 5,000	.30
" 40,000	.25
Excess	.20

Miscellaneous Regulations

1. City places no restrictions on lawn sprinkling.
2. Large air-conditioning units must be supplied with recycling systems.

General Data

Population served..... 11,000
Services (100% metered)..... 2,869
Hydrants..... 202
Valves..... 178
Miles of mains..... 37
Supply—Mississippi River
Treatment—lime, alum, activated carbon, chlorine rapid sand filter
Storage facilities—250,000 gallons in elevated tank
350,000 gallons in covered reservoir
Average demand..... 1.5 mgd
Plant capacity..... 3.5 mgd

Typical Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.20
5,000	667	2.00
10,000	1,333	3.50

Remarks

1. Rates have remained unchanged for many years.
2. Charitable institutions receive water without charge.
3. City combines the funds received from water charges with those from the city-owned electric utility.
4. City owns meters; places them in a box at the lot line.
5. Bills are prepared on Burroughs automatic billing machine.

AMOS AIRHART
Superintendent of Utilities

SANTA MONICA, CALIF.

Rates Bimonthly

Size of Meter (in inches)	*Minimum Charges*
⅝ or ¾	$2.60
1	3.70
1½	5.00
2	7.20
3	9.90
4	13.20

Volume of Water (in cubic feet)	*Metered Charges* (per 100 cubic feet)
First 1,200	$0.22
Next 1,200	.1925
" 4,000	.165
" 6,000	.1375
" 20,000	.11
" 70,000	.099
" 120,000	.088
" 150,000	.077
Excess of 372,400	.066

Miscellaneous Regulations

1. At option of department, bills may be submitted monthly on basis of minimum charges that are half those shown above and using metered charges with blocks that are half the quantity shown.
2. Public fire-service charge is $100 per month. There is no private fire-service charge.
3. No restrictions are placed on air conditioning or lawn sprinkling.

General Data

Population served..... 75,731
Services (100% metered)..... 16,202
Hydrants..... 1,060
Valves..... 4,844
Miles of mains..... 176
Supply—10% from wells; 90% from Metropolitan Water District.
Storage facilities— 100,000 gallons in elevated tanks
21,900,000 gallons in covered reservoir
Average demand..... 10.87 mgd

Typical Costs Bimonthly

Gallons	*Cubic Feet*	*Costs*
8,976	1,200	$2.60
9,724	1,300	2.83
20,196	2,700	5.45

Remarks

1. Present rates were established in November 1952, representing an increase of 10%.
2. Water is sold to other city departments at the rate of $0.065 per 100 cubic feet. Excess funds of the Water Department are transferred to the general fund.
3. The department owns all meters and places them in concrete meter boxes at the lot lines. Meters are checked once every 10 years, and additional revenue has been experienced from this practice over and above the cost of the replacement program.
4. Bills are processed by a Burroughs automatic billing machine.

JOHN R. PATTEN
Water Superintendent

ANTIOCH, CALIF.

Rates Per Month

Volume of Water (in cubic feet)	*Metered Rates* (per 100 cubic feet)
First 700	$0.25
Next 4,300	.20
Over 5,000	.15

Miscellaneous Regulations

1. Minimum charge is $1.75 per month.
2. Charges are doubled for service outside the city.
3. City makes no fire-protection charges.
4. No restrictions are placed on the use of water for air conditioning or lawn sprinkling.
5. Fluoridation with sodium silicofluoride is provided as a dental health measure.

General Data

Population served..... 13,712
Services (80% metered)..... 4,500
Hydrants..... 390
Valves..... 700
Miles of mains..... 48
Supply—river, canal
Treatment—rapid sand filter
Storage facilities—2,000,000 gallons in covered reservoirs
Average demand..... 2.1 mgd
Plant capacity..... 6 mgd

Typical Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.75
5,000	667	1.75
10,000	1,333	3.50

Rates Per Month

1. Present rates have been in effect since 1947.
2. Water is delivered free to other municipal departments and to churches, but not to parish houses.
3. Overhead costs, applicable to water operation, are diverted to the city general fund.
4. Meters are owned by the city and are located in a meter box at the lot line.
5. Bills are prepared on a Burroughs Sensimatic Model 500 automatic billing machine.

GEORGE W. WATTS
City Controller

CLEVELAND HEIGHTS, OHIO

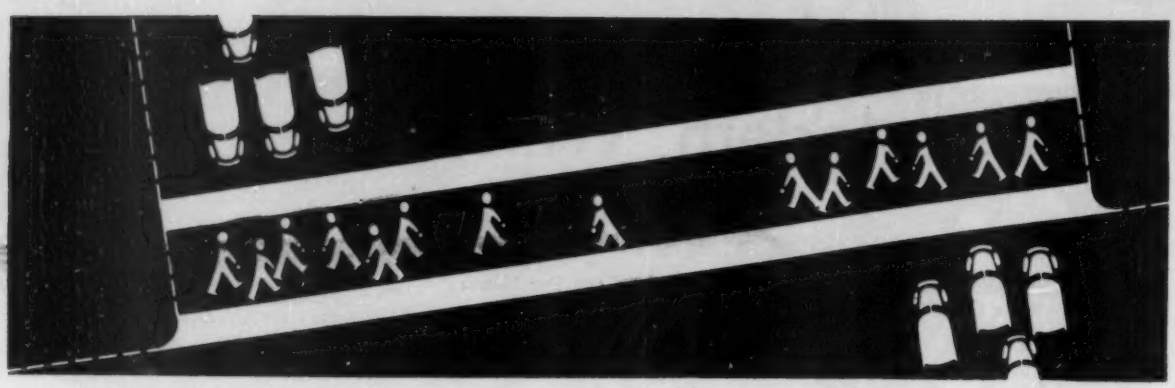
Rates

1. $2.30 per 1,000 cubic feet per quarter.
2. Minimum charge $4.00 per quarter for 1,400 cubic feet.
3. $25.00 per hydrant per year for fire protection.

General Data

Population served..... 62,000
Services (100% metered)..... 15,255
Supply—purchased from Cleveland

(*Continued on page* 139)



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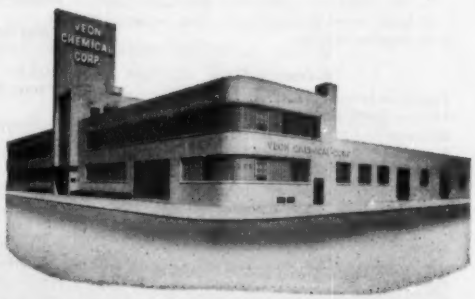


(*Continued from page* 137)

Typical Costs Per Quarter

Gallons	*Cubic Feet*	*Costs*
9,000	1,200	$4.00
15,000	2,000	4.60
30,000	4,000	9.20

Remarks

1. Water user owns the meter; most are placed in building occupied by user. Meters are checked for accuracy every five years.
2. Bills are prepared on a National Cash Register billing machine.
3. Rates have increased about 20% in recent years. The present rates went into effect in July of this year.

WILEY C. DAVIS
Water Commissioner

CHICAGO, ILL.

Miscellaneous Regulations

1. Metered rates are $0.90 per 1,000 cubic feet net for all uses and amounts.
2. The city also maintains a detailed system of flat rates for unmetered services.
3. Water users on flat rates receive a 5% discount for prompt payment.
4. Lawn sprinkling and window and walk washing are restricted to the hours of 5:00 a.m. to 7:00 a.m., 2:00 to 4:00 p.m., and 8:30 to 10:30 p.m. from June to September inclusive. No restrictions exist on water use for air conditioning.
5. No separate charges are made for fire protection.

General Data

Population served	4,298,000
Services (30% metered)	455,579
Hydrants	43,579
Valves	41,549
Miles of mains	4,016
Supply—Lake Michigan	
Treatment—one-third sand filters two-thirds chlorination alone	
Storage facilities—47,000,000 gallons in covered reservoirs	
Average demand	1,007 mgd
Plant capacity	2,435 mgd

Typical Metered Costs Bimonthly

Gallons	*Cubic Feet*	*Costs*
6,000	800	$0.72
10,000	1,333	1.20
20,000	2,667	2.40

Remarks

1. Rates have been increased 50% in the last five years.
2. Bills may be paid at any American Express Company office.
3. City donates water to other municipal departments, churches, and charitable institutions.
4. City diverts funds from Water Department to pay 86% of the cost of sewer operation and maintenance, and proportionate cost of operation of various departments performing service for the department.
5. City owns all meters; places them in building occupied by the water user. Small meters are read bimonthly; large, monthly. City checks meters for accuracy once every six years.
6. Bills are prepared with the use of a Burroughs automatic billing machine.

J. W. JARDINE
Commissioner of Water and Sewers

WHITTIER, CALIF.

Rates Per Month

Size of Meter (in inches)	*Minimum Charges* Inside City	Outside City
⅝ or ¾	$ 2.00	$ 4.00
1	2.50	5.00
1½	3.50	7.00
2	4.50	9.00
3	7.00	14.00
4	9.00	18.00
6	11.00	22.00

Volume of Water (in cubic feet)	*Charges* (per 100 cubic feet) Inside City	Outside City
First 10,000	$0.20	$0.30
Next 10,000	.15	.25
" 40,000	.12	.20
Over 60,000	.08	.15

Miscellaneous Regulations

1. No restrictions are placed on the use of water for air conditioning or lawn sprinkling.
2. No separate charge is entered for fire protection

General Data

Population served	31,000
Services (100% metered)	9,500
Hydrants	665
Valves	1,451
Miles of mains	110
Supply—wells	
Treatment—none	
Storage facilities—300,000 gallons in elevated tanks 18,615,000 gallons in covered reservoirs	
Average demand	4.9 mgd
Plant capacity	24 mgd

Typical Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$2.00
5,000	667	2.00
10,000	1,333	2.60

Remarks

1. These rates represent a raise of 33⅓% over those charged in previous years.
2. The Water Department distributes no water without charge, nor are water funds diverted to other municipal uses.
3. Meters are owned by the department and are placed at the lot line and checked for accuracy once every 10 years.
4. Bills are prepared with the help of Remington Rand billing machines.

K. R. WARREN
Water and Street Superintendent

CARBONDALE, ILL.

Rates Per Month

Volume of Water (in gallons)	*Metered Charges* (per 1,000 gallons)
First 10,000	$0.40
Next 20,000	.30
" 70,000	.20
" 300,000	.15
Excess	.13

Miscellaneous Regulations

1. Penalty of 10% is assessed for bills not paid by the tenth of the month. Minimum penalty is 25 cents.
2. No regulations govern the use of water for air conditioning or lawn sprinkling.
3. Fire protection charges for service to sprinkler systems are based on the number of heads installed.
4. Sodium silicofluoride is added to the water as a dental health measure.

General Data

Population served	18,000
Services (100% metered)	5,500
Hydrants	350
Valves	850
Miles of mains	40
Supply—lakes	
Treatment—rapid sand filters	
Storage facilities—250,000 gallons in elevated tanks 850,000 gallons in covered reservoirs	
Average demand	1.3 mgd
Plant capacity	3.0 mgd

Typical Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.20
5,000	667	2.00
10,000	1,333	4.00

Remarks

1. Rates have remained unchanged for many years.
2. Water Department supplies water free to the city hall only. A portion of the water funds is transferred for city hall office salaries.
3. Department owns all meters and places them in meter boxes at the lot line.

F. ELDRIDGE CORBIT
Distribution Superintendent

SPRINGER, N. M.

Volume of Water (in gallons)	*Metered Charges* (per 1,000 gallons)
First 2,000	$2.00 min.
Next 6,000	.30
" 10,000	.25
" 10,000	.20
" 22,000	.13
Excess	.12

Miscellaneous Regulations

1. Minimum charge for water use is $2.00 per month and includes 2,000 gallons.
2. City restricts water use for lawn sprinkling during emergency droughts.
3. No charges are made for fire protection.

General Data

Population served	2,500
Services (100% metered)	500
Hydrants	37
Valves	85
Miles of mains	16
Supply—lake	
Treatment—none	
Storage facilities—100,000 gallons in standpipe	
Average demand	200,000 gallons daily
Plant capacity	300,000 gallons daily

Typical Costs Bimonthly

Gallons	*Cubic Feet*	*Costs*
3,000	400	$2.30
5,000	667	2.90
10,000	1,333	4.70

Remarks

1. Rates have risen 25% in recent years.
2. City bills for water, light, garbage collection on same statement.
3. No water is distributed free. No water department funds are diverted to other uses.
4. Department owns all meters; places them in a box at the lot line.
5. Bills are prepared without the use of automatic billing equipment.

ELOY DE AGUERO
Water Superintendent

WASHINGTON C. H., OHIO

Rates Per Month

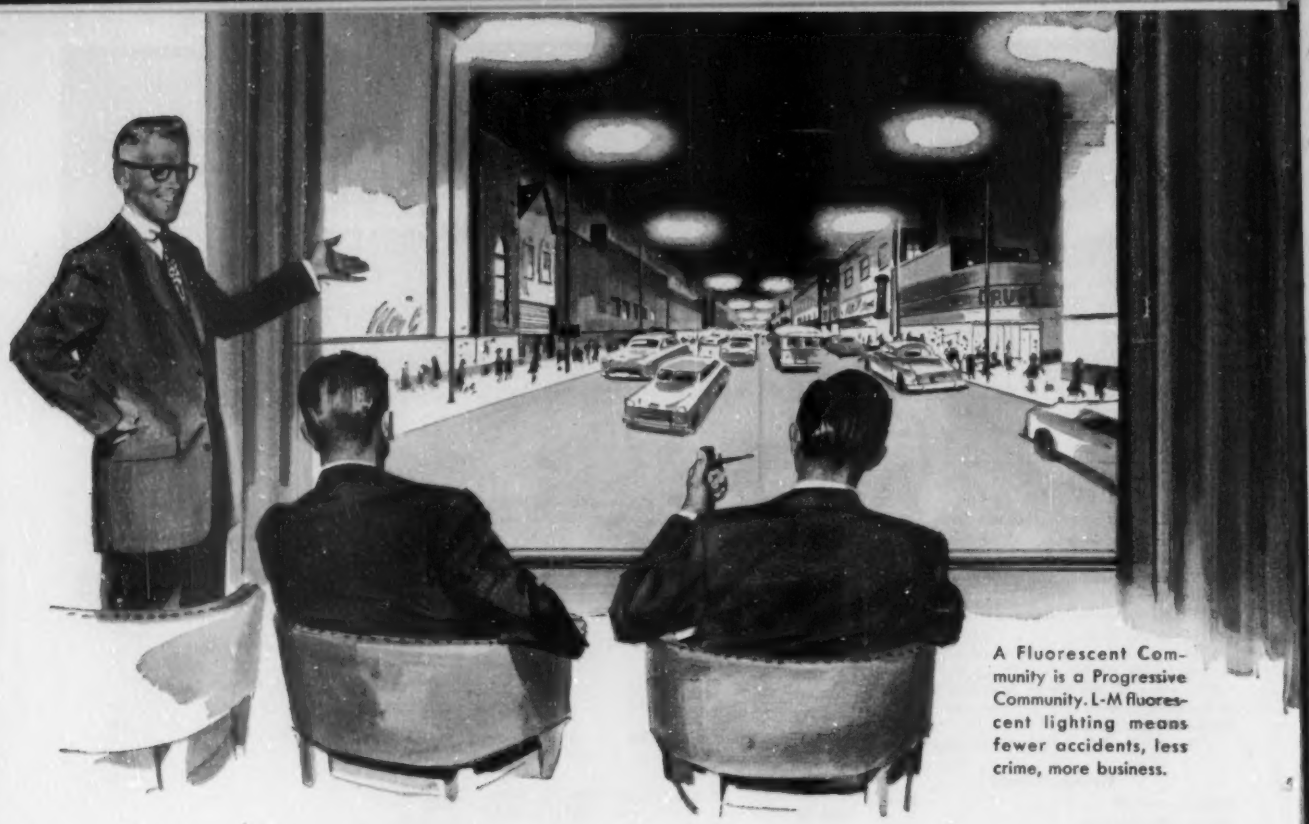
Volume of Water (in cubic feet)	*Charges* (per 100 cubic feet)
First 200	$1.10 min.
Next 1,800	.26
" 2,000	.23
" 4,000	.17

Minimum Charges Per Year*

Size of Meter (in inches)	*Charges*
⅝ or ¾	$ 13.20
1	36.00
1½	90.00
2	120.00
3	180.00
4	240.00
6	480.00

* Total charge is sum calculated from figures above plus an amount equal to 10.99%.

(*Continued on page* 193)



A Fluorescent Community is a Progressive Community. L-M fluorescent lighting means fewer accidents, less crime, more business.

L-M's New Fluorescent Street Lighting Luminaire
Large Light Source, Minimum Glare

By **STACY STANDLEY**
Manager
Lighting Sales
Line Material Company

L-M's New Fluorescent Luminaire is a revolutionary improvement in street lighting. With its large light source the fluorescent luminaire produces an even, cool white color over a large area. Because of its large light source, it provides virtually glareless illumination.

Fluorescent luminaires provide a light that is particularly advantageous in business and shopping sections. The surrounding sidewalk area adjacent to the curb is illuminated and gradually fades out to make the background contrast as gradual as possible. This provides a wider scope of vision for both the motorist and the pedestrian, in addition to creating a cheerful and active atmosphere in the shopping area.

L-M's New Fluorescent Luminaires are available in these styles:

1 4-lamp V-shape for use on wide streets

2 4-lamp bi-directional tilted 20° toward the street for narrower streets and entrance ways

3 4-lamp bi-directional with level horizontal mounting for center parkway and area lighting

4 2-lamp uni-directional for underpass, flood lighting, perimeter and ramp lighting

The fluorescent lamp used in these luminaires has a rated lamp life of 7500 hours. This longer lamp life reduces the cost of relamping luminaires below any other type now used for street lighting.

Features of L-M's New Fluorescent Luminaires

Large light source • Even, cool white color • Minimum glare • Low power consumption • Longer lamp life

Separate efficient reflecting system for each lamp • Good vertical component across the whole surface of the street • Good balance between building and road surface

Two lamp ballasts • Easy accessibility for relamping • Wiring terminal block easily accessible • Ballast can be removed very simply • Bracket adjustable ±5° for leveling.

L-M's fluorescent luminaires are easily accessible for cleaning, relamping, wiring terminal block and ballast removal. Four-lamp unit has two ballasts with one tube on either side of the luminaire paired to each ballast. Thus, if one tube burns out, the light output of the luminaire is reduced only 50% in each direction. Also, if desired, two lamps could be switched off for part night circuits.

Get Complete Information

Details of the new L-M fluorescent luminaires are available. Ask the L-M Field Engineer for information, or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

LINE MATERIAL
Street Lighting

195-A-2

Slapping Up New Luminaires Won't Necessarily Provide Efficient Street Lighting

THE purpose of this discussion is to try to determine what a municipality obtains from the price it pays for street lighting. Does a city that pays $2 per capita get twice as much street illumination as a city that pays $1? Would the latter city double the illumination if it paid $2? First of all, before comparing a particular city's new street illumination and its cost with its old illumination and its cost, let us see what 18 different cities are paying and receiving.

The several tabulations here are rearrangements of street-lighting data for 18 cities as of October 1953, as presented in Report 119 issued by the International City Managers' Association.

Table I arranges these cities into four groups according to which owns the lighting system, the city or the utility. The right half of the table gives the basic figures: population; miles lighted, total lumens; annual cost. The left half of the table gives the unit figures. The cities in each of the four groups are listed according to what they pay per capita for street lighting, as per capita cost is the most familiar and significant figure from the standpoint of the officials who consider an improvement of the local street lighting.

In cities where the private utility owns, services, and energizes the street-lighting system, it may be presumed that there is a basis for comparison. In the four cities in the table, where this is the case, there is indeed an agreement in per capita costs (81, 87, 87, 1.15 cents) and in lumens per capita and in cost per mile lighted. These are the lowest figures of any of the four groups, and indicate a possible lack of complete knowledge on the part of the city officials of the economic facts of street lighting and, consequently, a reluctance to order and approve an over-all modernization program. The utility does all the work: buys and installs equipment; services it; supplies electric energy.

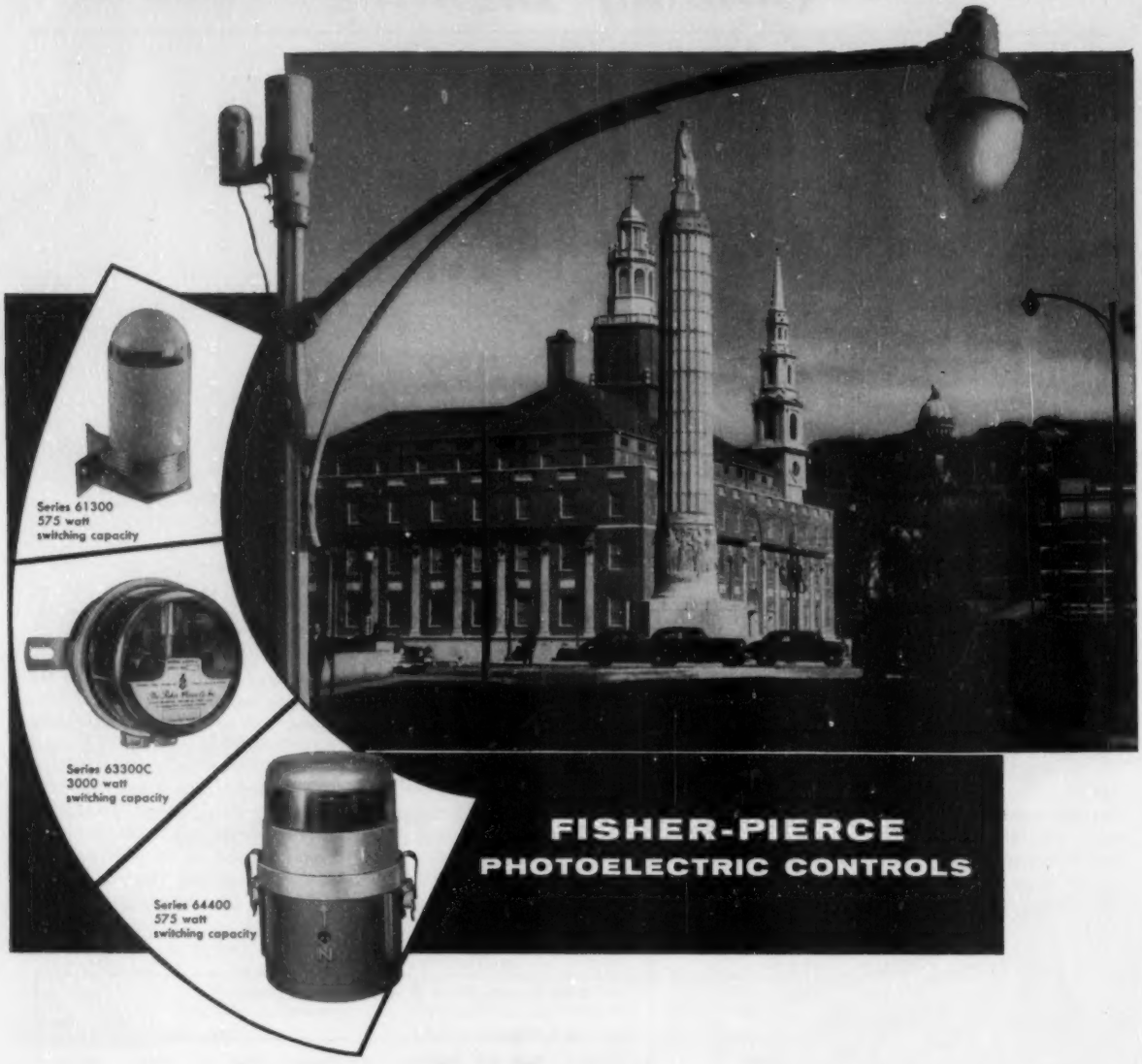
What is the basis of street-lighting costs in cities that own an electric plant or distribution system as well as their street-lighting installation? Is it in accordance with actual costs to produce or is it an arbitrary figure allowed by the municipal electric depart-

Continued on page 145)

TABLE I — STREET LIGHTING DATA FOR 18 CITIES AS OF OCTOBER 1953

CITY	UNIT FIGURES: Per Capita Cost	Per Capita Lumens	Lumens Per Mile	Cost Per Mile	TOTAL FIGURES: Population	Miles Lighted	Total Lumens	Annual Cost
Cities that own part of lighting system								
Pendleton, Oreg.	$0.55	164	49,500	$ 167.50	11,700	38.8	1,920,000	$ 6,500
Alhambra, Calif.	1.32	219	88,500	533.20	53,500	132.4	11,710,000	70,607
Phoenix, Ariz.	1.46	242	———		129,200	———	31,580,000	190,000
Sarasota, Fla.	1.54	103	33,600	501.74	18,900	57.8	1,940,000	29,000
Long Beach, Calif.	1.59	238	102,000	681.20	230,800	600.6	61,390,000	410,388
Cities that own lighting system								
E. Lansing, Mich.	$0.59	88	67,000	$ 449.43	20,300	26.7	1,790,000	$ 12,000
New Rochelle, N.Y.	2.02	121	42,300	770.20	59,700	170.0	7,230,000	120,225
Palo Alto, Calif.	2.75	252	61,000	669.00	25,500	105.0	6,400,000	70,253
Cities that own electric plant and lighting system								
Richmond, Va.	$0.74	175	81,500	$ 344.52	230,300	495.0	40,380,000	$170,540
Lubbock, Tex.	1.07	216	185,000	925.55	71,700	83.0	15,450,000	76,821
Norwich, Conn.	1.55	182	82,400	703.27	37,600	83.1	6,850,000	58,442
Danville, Va.	1.59	345	161,400	746.66	35,100	75.0	12,100,000	56,000
Winnetka, Ill.	1.64	159	37,300	384.89	12,100	51.5	1,920,000	19,822
Alliance, Nebr.	3.58	566	267,000	1,703.49	7,900	16.6	4,470,000	28,278
Cities not owning light system								
Presque, Me.	$0.81	75	30,800	$ 337.50	9,900	24.0	740,000	$ 8,100
Ogden, Utah	0.87	132	52,000	343.16	57,100	145.7	7,570,000	50,000
Greensboro, N.C.	0.87	106	———	———	74,400	———	7,870,000	64,830
Dayton, Ohio	1.15	139	———	———	243,900	———	36,750,000	———

CONTROLLING STREET LIGHTS IN PROVIDENCE, R. I.

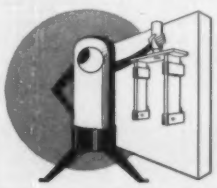


Motorists and pedestrians in Providence can thank their City Government for authorizing The Narragansett Electric Company to install dependable, automatically controlled street illumination.

The use of Fisher-Pierce street lighting controls assures dependable *automatic* illumination of streets the moment daylight drops below a safe value. Because F-P controls are photoelectric, they operate regardless of the hour, the season or the weather.

On the job in Providence since 1946, F-P controls now number about 3000. Narragansett engineers report favorable installation economics *and* an extremely low failure rate — only 2.29% of *all* units during a recent 12-month period.

Long, dependable service of F-P controls — in street lighting control systems in Providence and hundreds of *other* communities — is the basic reason Fisher-Pierce is recognized as a *leader* in its field.



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DIVISION OF NORTH AMERICAN PHILLIPS
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AUSTIN-WESTERN HYDRAULIC CRANE

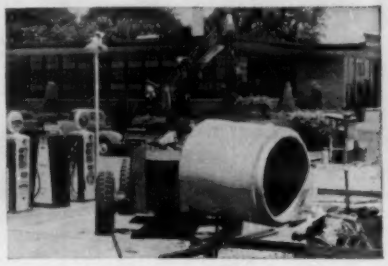
That's what I call a LIVE BOOM

. . . as you will agree, when you see this most versatile of all mobile cranes in action. During the entire pickup—carry—placement cycle, the boom is completely "alive," responds instantly to the operator's every demand; gets the job done with maximum ease and speed.

All tractor models have 4-wheel steer for maneuvering in close quarters; some have 4-wheel drive for maximum tractive effort. Boom lengths range from 18 to 35 feet. Outriggers may be had, if wanted. Usefulness is increased by such optional equipment as magnet and winch, and either clamshell or orange peel bucket.

HANDLING POLES. Where jobs are widely scattered, the truck-mounted crane has obvious advantages.

HANDLING CABLE REELS. Light departments and utility companies find the Hydraulic Crane ideal for such work.



SETTING PIPE. Sewer and water departments like the Hydraulic Crane for its speed and precision.

See the Hydraulic Crane in action at the Atlantic City Public Works Congress, September 19-22.

AUSTIN-WESTERN COMPANY
Construction Equipment Division • Baldwin-Lima-Hamilton Corporation
AURORA, ILLINOIS, U.S.A.
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AUSTIN-WESTERN COMPANY
637 Farnsworth Avenue, Aurora, Illinois

Please send complete information and literature on the Austin-Western Hydraulic Crane.

Name.....
Title.....
Company.....
Street.....
City..... Zone..... State.....

TROY, NEW YORK, MODERNIZES WITH MONOTUBES.

Replacing a 30 year old street lighting system, 220 aluminum Monotube poles supporting 15,000 lumen lamps, give Troy's congested downtown business district modern, attractive and efficient street lighting that *any* city could be proud of. This modern Monotube installation, by the Niagara Mohawk Power Corp., conforms with the latest specifications of the A.S.A. and the Recommended Practices of the I.E.S.

Available in a wide range of designs and sizes, Monotube poles in both steel and aluminum are engineered to meet *every* lighting support need . . . with maximum durability and minimum maintenance demands.

Write today to The Union Metal Manufacturing Company, Canton 5, Ohio, for complete-line catalogs or helpful advisory service.

UNION METAL

Monotube Lighting Poles

TABLE II THREE GROUPS ACCORDING TO PER CAPITA COSTS

CITY	COST PER CAPITA	LUMENS PER MILE	COST PER MILE
Less than $1 per capita			
Pendleton, Oreg.	$0.55	49,500	$ 168
E. Lansing, Mich.	.59	67,000	449
Richmond, Va.	.74	61,000	345
Presque, Me.	.81	30,800	338
Ogden, Utah	.87	52,000	348
Greensboro, N.C.	.87	-------	----
	$0.74	56,060	$ 329
$1 to $2 per capita			
Lubbock, Tex.	$1.07	186,000	$ 926
Dayton, Ohio	1.15	-------	----
Alhambra, Calif.	1.32	68,800	885
Phoenix, Ariz.	1.46	-------	----
Sarasota, Fla.	1.54	33,600	502
Norwich, Conn.	1.55	82,400	705
Danville, Va.	1.59	161,400	747
Long Beach, Calif.	1.59	102,000	683
Winnetka, Ill.	1.64	87,500	866
	$1.43	93,743	$ 640
More than top table	92%	70%	96%
Over $2 per capita			
New Rochelle, N.Y.	$2.02	42,000	$ 770
Palo Alto, Calif.	2.75	61,000	669
Alliance, Nebr.	3.58	267,000	1705
	$2.78	123,000	$1047
More than top table	276%	120%	218%

TABLE III CITIES GROUPED ACCORDING TO LUMENS PER MILE OF LIGHTED STREETS

CITY		COST PER CAPITA	LUMENS PER LIGHTED MILE
Less than 50,000 lumens per mile			
Pendleton, Oreg.		$0.55	49,500
Sarasota, Fla.		1.54	33,600
New Rochelle, N.Y.		2.02	42,500
Winnetka, Ill.		1.64	87,500
Presque, Me.		.81	30,800
	Average	$1.31	38,820
50,000 - 100,000 lumens per mile			
Alhambra, Calif.		$1.32	68,800
E. Lansing, Mich.		.59	67,000
Palo Alto, Calif.		2.75	61,000
Richmond, Va.		.74	61,500
Norwich, Conn.		1.55	82,400
Ogden, Utah		.87	52,000
	Average	$1.30	72,067
Over 100,000 lumens per mile			
Long Beach, Calif.		$1.59	102,000
Lubbock, Texas		1.07	186,000
Danville, Va.		1.59	161,400
	Average	$1.42	149,800

(*Continued from page* 141)

ment or the city council? A just comparison among all 18 cities would require that these questions be answered and any arbitrary charges not based on real costs be omitted. The figures for Alliance, Nebr., are so far out of line with those of the other five cities, that they need explanation in a separate article.

Between the cities in which the private utility owns, energizes, and services the street-lighting installation and the cities which do the entire job themselves, are the cities that own the street-lighting system wholly or in part. These cities may or may not maintain the equipment, and costs may vary in accordance with whether they do or don't.

ICMA Data on Street-Lighting Costs

Thus, it is seen by all utility men and by many city officials that street-lighting costs are not scientific figures but are influenced by many considerations.

We are dealing here with the data collected by the International City Managers' Association. Average cost and lumens per capita in the cities in the four ownership groups (omitting Alliance, Nebr.) are as follows:

	Average Per Capita	
	Cost	*Lumens*
Utility owns and operates	$0.93	113
City owns part of system	1.29	193
City owns entire system	1.78	154
City owns system and plant	1.32	216

Eleven of the cities pay from $0.55 to $2.02 for 75 to 182 lumens per capita. The averages are $1.12 and 131 lumens.

Six cities pay $1.07 to $2.75 for 216 to 345 lumens per capita. The averages are $1.63 and 252 lumens. These cities pay, on the average, only 46% more than the average payment by the 11 cities and receive an average of 92% more lumens or units of light.

Cost Compared with Illumination Received

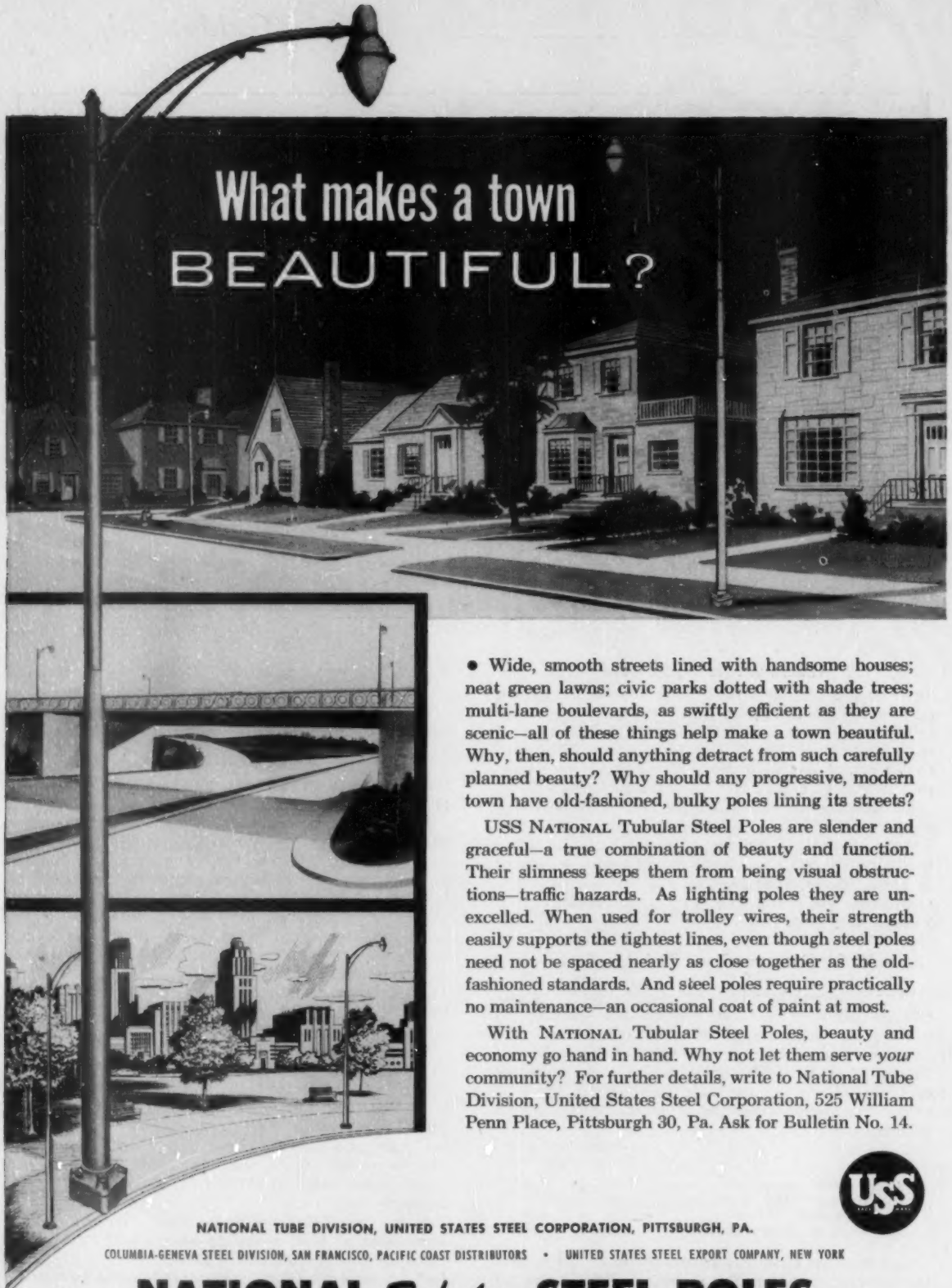
Table II groups the 18 cities according to whether they pay less than $1 per capita, over $1 and under $2, and over $2.

Perhaps the most puzzling grouping is by lumens per mile. Let us take three groups: under 50,000 lumens per mile; 50,000 to 100,000; over 100,000 lumens per mile. Table III makes the grouping. The five cities with less than 50,000 lumens per mile are paying an average of $1.31 per capita. The six cities whose streets are lighted by 52,000 to 88,500 lumens per mile are paying an average of $1.30. The three cities with over 100,000 lumens per mile are paying an average of $1.42. This third and best-lighted group pays only 8% more than the least-lighted for 286% more illumination.

Designed Street Lighting Needed

One fact that seems to be apparent in these figures is that price alone assures neither good lighting nor inadequate lighting. The city having the most lumens per mile pays only $1.07 per capita on the average. The two cities paying the most, $2.02 and $2.75 per capita, receive only 42,500 and 61,000 lumens per mile, respectively.

Is the successful exit from these data a fact that knowledge of how to design an efficient street-lighting system is the answer to getting what a city pays for? Lumens per mile are measured on the pavement. If they are not placed there, they won't be found in the measurement. Lumens on the pavement are determined by the size of the lamp, the efficiency of the luminaire, the spacing and mounting heights. Are the lamps too



• Wide, smooth streets lined with handsome houses; neat green lawns; civic parks dotted with shade trees; multi-lane boulevards, as swiftly efficient as they are scenic—all of these things help make a town beautiful. Why, then, should anything detract from such carefully planned beauty? Why should any progressive, modern town have old-fashioned, bulky poles lining its streets?

USS NATIONAL Tubular Steel Poles are slender and graceful—a true combination of beauty and function. Their slimness keeps them from being visual obstructions—traffic hazards. As lighting poles they are unexcelled. When used for trolley wires, their strength easily supports the tightest lines, even though steel poles need not be spaced nearly as close together as the old-fashioned standards. And steel poles require practically no maintenance—an occasional coat of paint at most.

With NATIONAL Tubular Steel Poles, beauty and economy go hand in hand. Why not let them serve *your* community? For further details, write to National Tube Division, United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa. Ask for Bulletin No. 14.

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NATIONAL *Tubular* STEEL POLES

UNITED STATES STEEL

small for efficiency (traffic and crime safety and getting the most for what the city pays)? Is the spacing 10 feet too long? Are the lamps mounted 5 feet too high for the size of the lamps?

Let the Best Engineers Do the Job Once

By this time the electrical industry should know what it costs to operate street-lighting systems—incandescent, mercury-vapor, fluorescent—of varying efficiencies in terms of all the lumens per mile that each can provide under the most efficient design. Have the utilities considered appointing a small staff of the very best working engineers in the field of street lighting to design stock systems fitting each class of streets—residential, industrial, secondary traffic and business, primary traffic and business—of widths 36, 46, 56, 66, 76, 80 and 96 feet?

The little staff of competent engineers could do this, in keeping with the recommendations of "American Standard Practice for Street and Highway Lighting," and submit their designs and recommendations to all the utilities. Having available a set of designs for the three types of street lighting suitable for all sizes and kinds of streets, any utility might quickly put together a proposed lighting system for any municipality that would provide adequate illumination at the most moderate cost.

Some Comments from Leading Authorities

Further Light on Street-Lighting Costs

HAVING GLANCED through the rearranged data on street lighting, we are convinced that you have done an excellent job in "picking the meat" out of the tabulation for 18 cities and in shaping it up in a form which should be of interest to your readers.

Admittedly, there are so many factors bearing on this whole matter of street lighting and the relative effectiveness of various systems under various methods of ownership and operation, that it is surely a major task to crystalize information and practice into a coherent and conclusive article.

A Measuring Stick

For instance, when conducting our three-day Lumenology Course on outdoor lighting, we quite frequently refer to a three-part "measuring stick" for a rough evaluation of the effectiveness of any given street-lighting system. These three factors are:

(a) 5,000-6,000 lumen average lamp size in the system
(b) Approximately a 30% average system utilization of light from the luminaires
(c) $2.50 to $4 annually per capita expended

We have received the tabulated information (right) on street-lighting systems in Cleveland Heights and East Cleveland; these cities claiming to have Code recommended levels on all streets. You will observe that they employ about the same number of lamps per mile; and not too dissimilar in average lamp size. The reason for the lower per capita cost in East Cleveland is the increased taxable population per mile of street. Again, we have just received some interesting information from a Midwest utility owning and operating street-lighting systems in numerous cities of various sizes. The per capita cost figures appear as follows:

Population	*Per Capita Cost*
15,000 and over	$1.01
5,000–15,000	1.40
1,500– 5,000	1.83
1,000– 1,500	2.30

Another example emphasizing the need for a higher per capita investment in smaller communities having increased street mileage per unit of population.

Cost of Street Lighting for Cities with Complete American Standard Practice Lighting

City	Cleveland Heights	East Cleveland
Population (official 1950)	59,141	40,047
Number of lamps	3,891	1,477
Persons per lamp	15	27
Per capita costs	$3.176	$2.194
Miles of street	125	50
Persons per mile	450	800
Average lamps/mile of street	31.3	29.8
Average lamp size	5,580 lumens	6,400 lumens
Average spacing between lamps	168.5 feet	177.4 feet
Lamp sizes and number:		
10,000 lumens	751	462
6,000 lumens	819	389
4,000 lumens	2,321	626
	3,891	1,477

NOTE: In addition, a small group of 25 15,000-lumen lamps are used in Cleveland Heights, and eleven 2,500-lumen lamps in East Cleveland at special areas.

R. M. SWETLAND
Application Engineer
Outdoor Lighting Department
General Electric Company
West Lynn 3, Mass.

Base Lighting Costs On Street Mileage

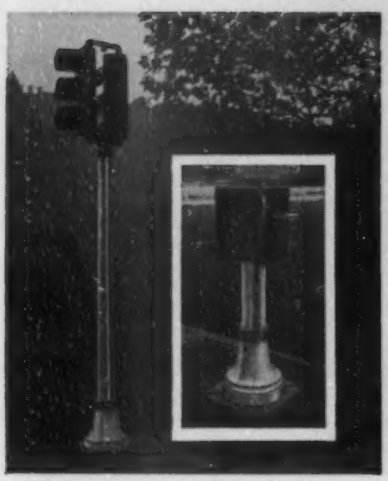
I AM in basic agreement with your article in this issue. The ultimate basis for street-lighting costs should be street mileage, rather than just a pole with any kind of light on it.

If a given class of street is lighted to the level and the quality prescribed by American Standard Practice, then the size of lamps, spacings, etc., will take care of themselves. It could be that fewer units with larger lamps would be most economical (generally the case), but it could also be that smaller sized units and more

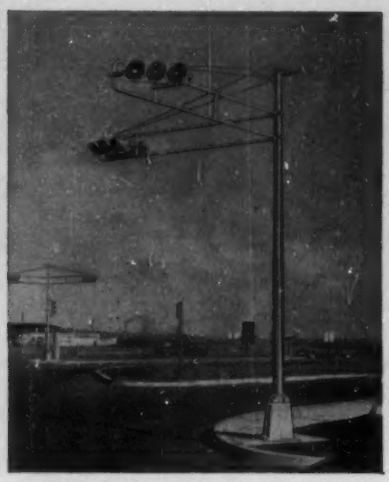
(*Continued on page* 151)

For MODERN

highway and municipal traffic control...



TRAFFIC LIGHT AND CONTROL BOX POSTS—As designed for and being installed in New York City to replace previously used steel posts at an average saving of up to $30.00 per unit.



TROMBONE ARM STANDARD—Equipped with a double and single signal on twin arms with swivel mount for angular adjustments. Available with arms up to 15 feet.

PA SIGN POST—Adjustable type, designed for general use and for electrified signs.

MAST ARM STANDARD—Model shown is equipped with walk-wait pedestrian signals. Supplied with arms up to 25 feet.

P&K all-aluminum maintenance-free standards and posts

P & K IS NOW PRODUCING ALL-ALUMINUM HIGHWAY SIGN SPANS IN A WIDE RANGE OF LENGTHS AND LOADINGS.

WHY MORE AND MORE COMMUNITIES AND HIGHWAY DEPARTMENTS ARE SPECIFYING P & K TRAFFIC POSTS AND ARMS . . .

. . . P & K All-Aluminum Standards and Posts prove the *wisest* investment . . . because of easy installation, negligible corrosion, long, maintenance-free life, and unusually great resistance to storms, winds, and knock-down damage.

WRITE FOR LATEST P & K CATALOG... and use the P & K planning and advisory services without obligation.

Pfaff & Kendall
84 Foundry Street
Newark 5, New Jersey

what YOU can gain from TRAF-O-TERIA as reported by users from 21 states

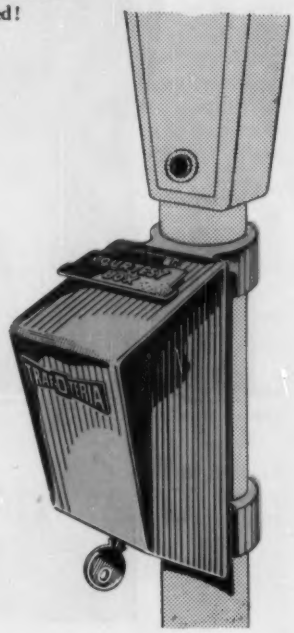
If you are concerned with parking control in your community, these results of a nation-wide survey just completed must surely interest you. This survey was made by mail among all known users of the Traf-O-Teria System. More than 50% of these users replied. Here is a summary of their answers:

QUESTIONS:		ANSWERS:
About what percentage of (overparking) penalties due did you formerly collect?	61%	was the average percentage of collections reported
What percentage do you collect now with Traf-O-Teria?	97%	was the average percentage of collections reported — an average gain of 36%!
Is your dollar volume of collections more or less with Traf-O-Teria?	89%	of specific answers showed more dollar volume — even though unit penalties had been sharply reduced in many communities using the System
What is public reaction — Favorable or opposed?	100%	of all specific answers showed a favorable public reaction — None were opposed!

TRAF-O-TERIA

Traf-O-Teria System, El Dorado, Kansas

THE ONLY PROVEN SYSTEM FOR FRIENDLY CONTROL



Traf-O-Teria System (Dept. Y)
El Dorado, Kansas

Send us the facts about the Traf-O-Teria System.

Name_____ Title_____

Address_____

City and State_____

FRIENDLY and FAMILIAR to millions of motorists!

Because it's made better to work better...to last longer

SUCCESS begets success! Precision-fit parts throughout—costlier stainless steel in all vital places—dust-proof, weather-proof seals all around! It's all good quality manufacture. No wonder DUALS do it better, for many, many more years.

Write today for information on SINGLE or DUBL-DUAL Parking Meters for on-street or off-street service—the modern meters with "drop-start" automatic action and selective gearshift time adjustment.

Helpful, detailed bulletins are available. Write *The Dual Parking Meter Company* (subsidiary of The Union Metal Manufacturing Co.), *Canton 2, Ohio.*

DUAL the Original... the Friendly PARKING METER

(*Continued from page* 147)

of them would be as economical because of existing distribution poles and other factors that must be considered. All of this should be largely at the choice of the service company supplying the street lighting.

WARREN H. EDMAN, *Manager*
Street Lighting Department
Holophane Company, Inc.
New York 17, *N. Y.*

A Warning on Costs and Lumens

WE have reviewed your article and agree that perhaps we have here the beginning of a type of discussion which can be of great practical value to city officials and to public utilities. But how many laymen or municipal officials are informed well enough about lighting to raise questions? Or even to weigh the questions you raise?

How many people who should know realize that good lighting is a summation of many variables such as reflectance factor, voltage supply, lamp life, refractor transmission factor? How many realize that 10 feet in spacing, or 5 feet in luminaire height, may have little effect on the amount of light on the street? How many realize that lumens on the street are important for an expressway, or that lumens on the sidewalk are important for a residential area? How many consider the wide variations in labor costs throughout the country? There are many more questions, such as overhead or underground system, age of system when lumen measurements were made, and types of area lighted.

We think you've done an excellent job with the report, but we wonder if some individuals may start to measure lighting, to their disadvantage, only in lumens per dollar. They may not consider all the other important factors.

S. STANDLEY, *Manager*
Lighting Sales
Line Materials Company
Milwaukee 1, *Wis.*

Wider Streets More Lumens

IT IS very hard actually to evaluate street lighting in terms of cost per capita or even lumens per capita. Geographic conditions often make both of these items vary considerably. Take, for example, Eastern cities where the streets are relatively narrow, fewer lumens per capita perhaps are required due to the smaller street area to light, and more dense population.

By comparison you may take a Western city, such as Salt Lake City, which has very wide streets, undoubtedly requiring considerably more lumens per capita for the same number of foot-candles of illumination on their streets.

E. B. KARNS, *Manager*
Street Lighting Sales Department
Westinghouse Electric Corp.
Cleveland, Ohio

Make Use of I.E.S. Standard Practice

YOUR article is an excellent arrangement of the figures in the recent report by the International City Managers' Association covering "Street Lighting Service." The article will give municipal officials, who are interested in street lighting, something to think about.

In the last paragraph, do you want to suggest that utilities appoint a staff of engineers in the field of street lighting to design systems? Both the utility and the municipal street-lighting engineer have already available in "American Standard Practice for Street and Highway Lighting," an excellent guide to modern street lighting. As you know, this is sponsored by the I.E.S. Street and Highway Lighting Committee, composed of 47 of the best brains in the business. They include municipal and utility engineers and representatives of the prominent street-lighting manufacturers.

W. A. PORTERFIELD
Vice-President in Charge of Sales Promotion
The Union Metal Manufacturing Company
Canton 5, *Ohio*

Fluorescent Lights In Statesville, N. C.

THE City of Statesville, N. C., has recently purchased and installed 104 General Electric Form 206 fluorescent luminaires of approximately 21,000 lumens. These lights are mounted in the business area approximately 145 feet apart, staggered spacing, at 30 feet above street-level. They provide a seeability unsurpassed by any other kind of light. The entire area is illuminated uniformly. On a rainy night, particularly, there is very little glare from the street surface.

Fluorescent lighting was selected after inspecting samples of incandescent, mercury-vapor, and mercury-vapor color-corrected displays. Though the cost of the fluorescent luminaires is somewhat higher, it is considered well worth the difference. Our Merchants' Association reports the following advantages:

1. ***Better over-all lighting for the business area of Statesville.***
2. ***A feeling of community pride encourages business establishments to redecorate both inside and outside.***
3. ***The new lighting system encourages more window shopping at night, resulting in larger sales in the daytime.***
4. ***The new system is a tribute to the progressive spirit of the city fathers, as well as to the community as a whole.***

The lights were installed by the City Light Department. After the concrete bases were poured and anchor bolts in place, the new units were installed at the rate of approximately 30 per day complete.

J. A. STEWART, *Superintendent*
Light and Power Plant
Statesville, N. C.

THE FIRST AND ONLY PAINT THAT DRIES FASTER AND WEARS LONGER

SAFETY-LITE TRAFFIC COATING

ROAD TESTED AND APPROVED —— A PRODUCT OF CONLUX PAINT CORP

DRIES IN 3 MINUTES

READY FOR TRAFFIC WITHIN 10 MINUTES

LOOKS BETTER—LONGER

- SAFETY-LITE TRAFFIC COATING is the finest traffic paint available and therefore economical to use from every standpoint.
- Due to its durability, quick-drying, and longer-lasting qualities, you save up to 50% on cost of labor and material.
- Excellent non-bleeding over asphalt.
- Dries to a tough mar-proof flexible film which expands and contracts with the surface without cracking or peeling.
- Water-proof, alkali-proof, and weather-proof.
- No need to wait for sunny, hot days for application as SAFETY-LITE TRAFFIC COATING may be applied at freezing to high temperatures as well as on extremely humid days, with excellent drying results.
- Covers solidly in one coat.
- Outwears ordinary traffic paints over 75% and therefore cuts costs by cutting repainting requirements.
- Contains specially-treated abrasive pigments for greater road durability.

AVAILABLE IN
YELLOW OR WHITE
REFLECTORIZED OR PLAIN

CON-LUX PAINT CORPORATION
Metuchen, New Jersey

Gentlemen:
We would like to have more information about your new safety-lite traffic coating.

☐ Please send us literature and prices.

☐ Please have your representative call.

Name .....

Title .....

Address .....

City ..... Zone .... State .....

Keeping Up With Traffic Requirements

By HENRY M. DeNOBLE
Director of Planning & Traffic
Lubbock, Texas

The flared intersection of 34th Street and Avenue H.

WITH a population of 83,000 in 1951 and one of 108,678 now, motor-vehicle registrations in Lubbock County have jumped 48%. Transit passengers entering and leaving the city daily have increased 20%. The fifth fastest-growing trade center in the nation, Lubbock attracts customers from a 300-mile radius. In line with the city's policy to stay ahead of traffic needs, we have adopted numerous measures to solve anticipated traffic problems of the present and the future.

A recent significant accomplishment in the problem of moving traffic has been the flaring of major intersections to a width of 77 feet. A flared intersection, for example, 34th Street and Avenue H, provides 7 lanes of moving traffic, 11 feet for each lane. Six of these lanes are used for through traffic and the old lane is used for left-turning movement. Flaring of minor intersections to provide an additional lane has also worked successfully and provides the additional width

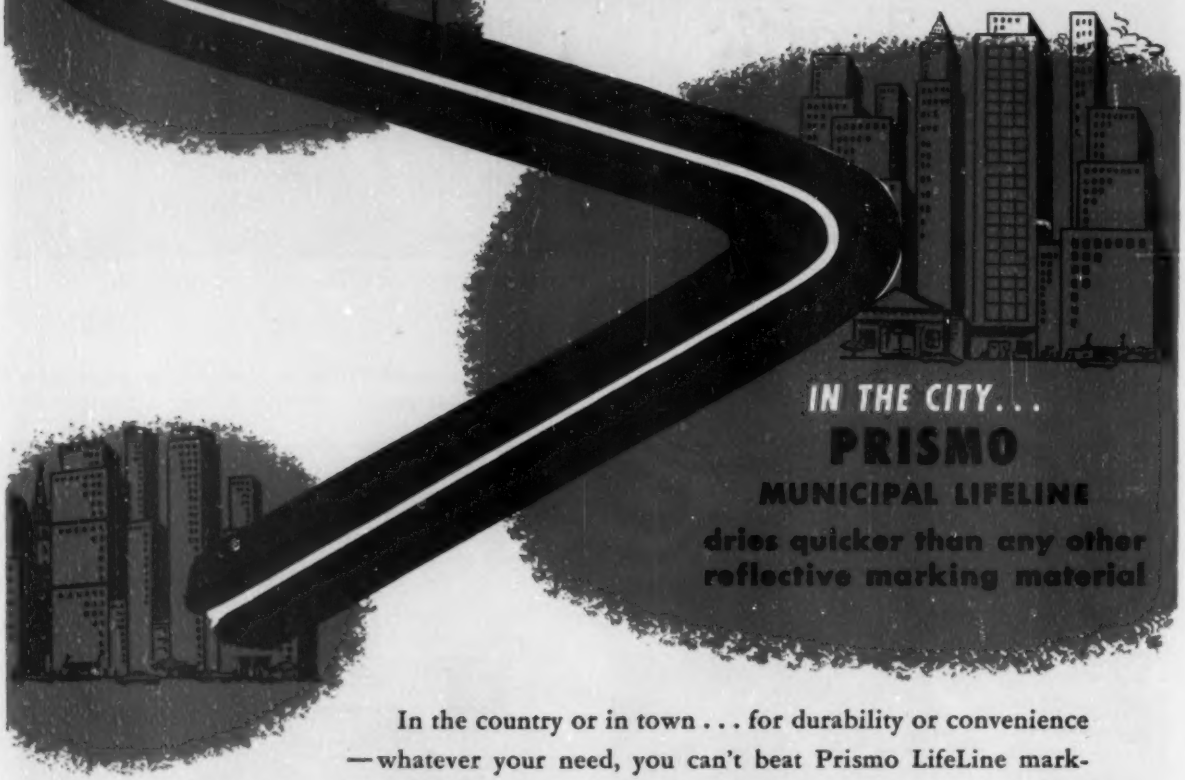
Lubbock's first traffic-control officers pause to inspect one of the city's 600 Magee-Hale Park-O-Meters.

Preventive maintenance is carried out in the parking-meter repair shop, and has proved to be a worthwhile policy.

ON THE HIGHWAYS

PRISMO *Super Life Line*

lasts longer than any other reflective marking material



IN THE CITY...

PRISMO

MUNICIPAL LIFELINE

dries quicker than any other reflective marking material

In the country or in town . . . for durability or convenience —whatever your need, you can't beat Prismo LifeLine markings. With brilliant, all-hour, all-weather reflectivity at an economical price, Prismo LifeLine has set a new "standard" for highway safety. Prismo markings, because of their unique, glass sphere-in-binder composition, offer you greater visibility, easier and lower-cost application and greater durability than any other reflective marking material that you can buy. Write or phone today for full details on the unusual Prismo LifeLine materials.

Request Catalog No. 354

PRISMO SAFETY CORPORATION

The SPHERE of SAFETY

HUNTINGDON • PENNSYLVANIA

587

needed for left-turning movement. We have provided over 15 flared intersections in Lubbock.

To provide more effective control of traffic, 24 additional intersections have been signalized in the last year, bringing the total signalized intersections to 122. Installation of all traffic signals (Crouse Hinds) is determined in each case by the vehicular volume, the interruption of continuous traffic, pedestrian volume, demanded movement, and accident hazards. The downtown system of traffic signals is controlled by a master controller which provides three different cycles a day.

Painting of lines in the past year resulted in the use of approximately 4,000 gallons of paint used to mark 228 cross-walks, 70 miles of center line, 120 loading zones, 21 miles of parking stalls, 15 bus stops, and numerous "No Parking" zones. On all center lines and lane lines, the paint is sprinkled with glass spheres, which provide a reflectorized line for night visibility.

In July 1953, four women were chosen from a group of 40 applicants and hired as Lubbock's first traffic-control officers. They are paid a salary of $176 per month, and work directly under the Traffic Engineer. They are responsible for the enforcement of parking-meter violations within the parking-meter area. During the first six months of operation, their work has provided for a faster vehicular turnover in the downtown parking spaces and curtailment of the all-day parker. Our parking meters are about half Duals and half Magee-Hale Park-O-Meters.

A continuing program of preventive maintenance is carried on in the parking-meter repair shop. Five parking-meter clocks are removed daily and replaced with mechanisms in good working order. This insures that all parking meters will be examined and cleaned once every 200 days. All parking meters are checked every morning to insure their working condition and the parking-meter clocks are wound once each week.

Revenue from the meters is collected by Lubbock Armored Car Service once a week. In 1953, vandalism put 162 meters out of commission, 7 of which were stolen. The city has 600 Magee-Hale Park-O-Meters and 534 Dual parking meters. There are fourteen 12-minute meters, one hundred forty-one 24-minute meters, and 879 one-hour meters. The 12- and 24-minute meters will take pennies or nickels to accommodate short-time parkers. One-hour meters will take only nickels.

To offset the elimination of angle parking, 12- and 24-minute meters have been installed at mid-block locations to provide a faster turnover of vehicles. Additional 24-minute meters are installed when business establishments request them. Parking-meter importance was emphasized when the parking-meter holiday was declared for the South Plains Fair. Prior to 8 a.m., all parking meter spaces were filled with local all day parkers.

First Make Streets More Efficient

By HENRY A. BARNES, *Director of Traffic, Baltimore, Md.*

When I was in Denver, any sucess we had was gained almost entirely through the use of existing thoroughfares.

It is really amazing what can be done, even with a 34-foot-wide street. Many cases in Denver can be noted where thoroughfares which normally carried almost no traffic, after having the parking removed from one side, a one-way street movement installed, and a modern system of flexible traffic controls completed, could then carry a peak-hour volume of 1,500 to 2,000 cars.

Pays Off in Output!

WALD REFLECTO-LINER MODEL 8T

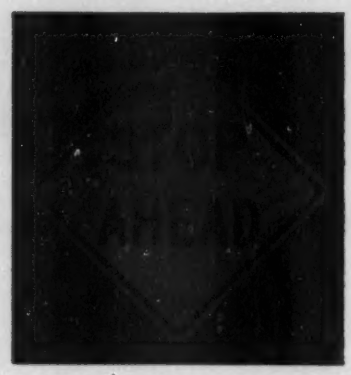
Mile after mile of uniform, clean-cut striping rolls behind the Model 8T Reflecto-Liner as it quickly and efficiently lays plain or reflective marking materials at a rate that lets you keep abreast of your striping needs. Designed for either town or industrial use, this single line machine is highly versatile and lays 2" to 6" lines to within one inch of curbs or walls . . . vertical and lateral gun adjustments let you spray entire curb in one pass. A 6 gallon paint capacity and a 50% reserve air supply give you top performance and flawless operation.

Get full details on this and other Wald reflecto-liners today. Write for your copy of general catalog W-10.

WALD INDUSTRIES, Inc.
HUNTINGDON, PENNSYLVANIA

722

How just $937.50 can help you handle more traffic–safely!



OLD-FASHIONED, inefficient, non-reflectorized signs like this perform their function properly only by day.

HERE'S A REPEAT of a special offer you shouldn't pass up—an answer to the problem of controlling expanding traffic volume with limited operating budgets.

611 AGENCIES from coast to coast have adopted this sign production system. Many other government agencies have asked that we repeat this offer, so here it is... your opportunity to equip a sign shop with a heat-lamp vacuum applicator for making and reclaiming reflectorized signs at a low investment.

NEW KIT PURCHASE SAVES YOU $562.50!

Everything you need for a modern sign shop! This kit includes a new, modern 36" fully-automatic vacuum applicator and complete supplies of "Scotchlite" Reflective Sheeting and sign blanks. Buy it to begin the conversion of your system to signs that are visible at night in true shape and color . . . or as a starter kit for refinishing or reclaiming old signs. Everything you need for top-quality reflectorization of signs and delineators is included. Use the coupon for complete information!

SIGNS OF "SCOTCHLITE" SHEETING protect motorists day and night—as well as your safety record . . . can be made professionally in your own shop with a vacuum applicator!

LOOK what you get!

- New "Scotchlite" 36" Heat Lamp Vacuum Applicator.
- 24" x 10 yd. roll of Wide Angle "Flat-Top" Silver "Scotchlite" Sheeting.
- 24" x 10 yd. roll of Wide Angle "Flat-Top" Yellow "Scotchlite" Sheeting.
- 24" x 10 yd. roll of Wide Angle "C" White "Scotchlite" Sheeting.
- 30 Unmounted stop signs, faces of red, yellow, or California Standard "Scotchlite" Sheeting.
- Forty .081 Aluminum blanks 24" x 24" (25 octagonal, 15 diamond).
- 6 Sets "Stop Ahead" "Scotchcal" Film cut-out letters.
- 6 Left curve symbols "Scotchcal" Film.
- 6 Right curve symbols "Scotchcal" Film.
- 6 "Narrow Bridge" cut-out letters, "Scotchcal" Film.
- 25 Sets border stripes "Scotchcal" Film (4 per set).
- 3 Templates (1 Narrow Bridge, 1 Stop Ahead, 1 Right & Left curve symbol).

Reg. U.S. Pat. Off.

SCOTCHLITE
BRAND
REFLECTIVE SHEETING

FOR SHAPE... COLOR... LEGIBILITY

The term "Scotchlite" is a registered trademark of Minnesota Mining and Manufacturing Company, St. Paul 6, Minnesota. General Export: 122 E. 42nd St., New York 17, N.Y. In Canada: London, Ontario, Canada.

MINNESOTA MINING AND MFG. CO.
St. Paul 6, Minn. (AC-94)

I would like information on your sign shop kit, together with diagram of model shop and information on making reflectorized signs. I understand there is no cost or obligation.

Name.....

Address.....

City.....Zone...State.....

Already in Baltimore we are beginning to gain some of the same results. Basically, in Baltimore, there is a good street system available. Streets ranging from 40 feet to 50 feet in width, which heretofore have not even been "through" arteries, are being utilized.

The traffic-signal system of Baltimore is probably among the most antiquated of any city in the country, controls in operation today in some cases being as much as 25 years old. One-way street systems had been installed in a hodge-podge manner with no thought given toward creating a *complete* one-way arterial system. The problem has rather been approached strictly from the standpoint of politics, and the one-way streets more often than not installed so as to block any "through" traffic movement.

Cities must utilize every single thing that is available to the engineer. He must squeeze the last ounce of efficiency out of existing thoroughfares.

This can be done—first, through the use of modern traffic-control systems. These may entail such things as traffic-actuated controllers, ranging all the way from a semi-actuated control to a full traffic-density control system. Many of these must be interconnected and coordinated through the use of electronic cycle selector control.

Second, a system of "through" streets will have to be instituted and protected by stop signs, and certainly greater use of one-way movements will be mandatory.

Third, people of all cities must decide whether they want to move freely in their communities, unimpaired by congestion, or retain the privilege of parking one's car on a street at any point where the driver may desire.

Fourth, merchants must recognize that people will not drive their cars to an area of business if the routes are congested, if there are accident-prone intersections en route, or if it is difficult to circulate throughout an area once they arrive.

Merchants, of course, complain that the lack of parking is putting them out of business, and yet they are a most difficult group to persuade that customer-parking is really *their* problem, much more so than that of the municipality. It is also difficult to convince merchants that even if there is sufficient off-street parking available, people will not drive through a congested area in order to make use of the parking space. Therefore, they must often sacrifice *on-street* parking as a means of inducing customers into their area.

One of the greatest difficulties a traffic engineer encounters today is the unwillingness of people to change their ways or habits. "It's all right to make Joe's street a one-way thoroughfare, but don't do that with my street. Parking should be removed on John's street, but not on my street."

Off-street parking must be constructed, according to the merchants, through private capital, as it is "socialistic" for a municipality to get into this kind of operation and compete with private business. However, *don't* ask the merchants to put up any money toward such projects.

If existing streets are made more efficient today, we will be doing much to prepare the way for the expressways and freeways of the future. Such highways will not be built through the business district, but will open onto a freeway around the business district, as a belt facility.

When such circumferential freeways are provided and long-time curb parking has been taken out of the business district and established along the belt, we will have a complete street and highway system so integrated that *all* traffic needs will be adequately taken care of.

New York City Tries A New Traffic Line

A NEW traffic line that is laid down like paint but is said to have the values that "permanent" markers should have, was laid down in New York City on Sunday, July 18, 1954.

Laying of the lines can be done between traffic-light changes, and the lines can be traveled over immedi-

Laying a Veon traffic line which is promised to last a long time. Those bending to the work are Poshang Yen and Arthur King, both of Broadway Maintenance Corporation, Long Island City, N. Y. Traffic Commissioner T. T. Wiley (in front) is observing the operation, protected by Trafficones.

ately; further drying time is not needed. There will be no distortion, no "pick-up," and no damage to the lines from this immediate use.

The new traffic-striping compound, and the mechanical means for laying the lines, were developed at both the Texas A & M Engineering Experiment Station and the Research Division, College of Engineering, New York University.

The tests at College Station, Texas, were reported in the August 1953 issue of THE AMERICAN CITY by Fred J. Benson and C. J. Keese, of the Texas Engineering Experiment Station, Texas A & M College.

The stripes were laid as "Zebra pedestrian crossings," as developed by the British Road Research Laboratory. The British used a hot-melt plastic stripe. Similar material was used in an experiment on the Texas College campus and, said the authors, "this marking has shown much better resistance to traffic wear than the paint used at other locations."

Qualities claimed for "Veon" are: a life equal to that of the pavement; retention of original color; ability to shed dirt and tire tracks through the rubber tires acting as erasers. The machine that lays the line with a one-man operation was designed by Broadway Maintenance engineers.

SHOW MAKE US YOU WHY...

trade-in allowance per meter by America's largest producer of parking meters, usually exceeds annual depreciation write-off!

That's right—make us show you WHY you can't lose, and HOW we'll allow you the maximum or more "blue-book" value on your time-worn meters, when traded for either of the brilliant performers at the left. Scores of cities who've traded for time-proven DUNCAN-built meters (manual or automatic), back up our assertion that—*this is the plan you've been waiting for* Write, wire or phone for further information on the advantages of a trade-in today.

These are the meters most cities are using today.

DUNCAN
PARKING METER CORP.
835 N. WOOD ST. CHICAGO 22, ILL.
Factory at Harrison, Arkansas

Manufacturers of the DUNCAN-AUTOMATON fully automatic and the DUNCAN-MILLER manual parking meters.

Plastic-Faced Plywood Road Signs Stand Up to New Mexico's Climate and Gunfire

By J. A. KENNEDY, *Traffic & Safety Director, State Highway Department, Santa Fe, New Mexico*

The face of plastic-faced PGX plywood road sign, adapted to meet the needs of New Mexico.

FROM 1938 THROUGH 1952, ¾-inch exterior plywood was used for highway signs in New Mexico, even though the best grade of this material was subject to severe checking caused by weathering. Once this checking started, moisture penetrated the inner layer of the plywood and caused a delamination that soon rendered the signs useless.

In an attempt to thwart vandals—who caused the Highway Department to lose in excess of $25,000 in damage to signs each year—plastic signs were purchased for those locations where vandalism was excessive. In some of these areas, the plastic signs were satisfactory.

Bullet holes in the plastic signs are easy to patch, since the bullets do not cause the shock area that is so commonly found after a metal sign has been shot. Yet, vandals have learned that plastic signs can be destroyed by pulling the signs from the posts without removing the bolts. Vandalism became an added spur in the study to obtain a suitable signboard material.

Such material, it was felt, should be durable under the existing weather conditions, be affected only to a minimum degree by bullets, and have the added characteristic of lending itself to easy fabrication.

Test Results

Signs of a new 60-60 plastic-faced marine-type plywood were purchased for test purposes in the fall of 1952. These signs were placed in various locations, each picked because of the particular difficulties the department was having with its signs in that area. To date, not one of these plastic-faced plywood signs has been damaged by weathering—remarkable in view of past difficulties.

In October 1953 the department purchased 7,072 square feet of ⅝-inch plastic-faced marine-type plywood for signboard material to be used in sign manufacture. Sample signs using this material were tested in a weatherometer.

The commercial laboratory that performed the tests was asked to make a 3-year durability test. Finished signs on the plastic-faced plywood with edges sealed with varnish and aluminum and three coats of paint came through the test in excellent condition. The department feels that plastic-faced marine-type plywood is the most suitable material for road signs that we have tested.

Where plastic-faced plywood is damaged by gunfire, we have found that the material has a tendency to close up after the bullet has entered; thus, only a small amount of moisture can enter before the sign crews are able to fill the holes with a caulking compound. A .45 caliber bullet will cause a shock area equal to a 4- or 5-inch circle when it strikes a metal sign.

"Procedure Sheet" Developed

One other point in favor of the plastic-faced plywood is its ease of fabrication. Many of our signs are 4 feet by 8 feet and ¾-inch thick. Using plywood eliminates the need for frames or backing. In areas where it is not practical to use aluminum or metal signs because of prevalent vandalism, the plastic-faced plywood signs have proved satisfactory.

Thus far, the department has purchased 72,128 square feet of ⅝-inch thickness and 64,000 square feet of ¾-inch plastic-faced marine-type 60-60 plywood for road-sign material. We have developed a one-sheet "Procedure for Preparation and Painting of Natural Plywood Sign Blanks"—copies available on request.

Moving Sidewalk in Jersey City

THE world's first commercial moving sidewalk can handle 10,400 passengers an hour between the stations of the Erie Railroad and the Hudson and Manhattan Railroad in Jersey City, N. J. The 227-foot conveyor, built for the Hudson and Manhattan Railroad by the Goodyear Tire and Rubber Co., and the Stephens–Adamson Manufacturing Co., is called a "Speedwalk." The General Electric Co., of Schenectady, N. Y., developed the electrical system.

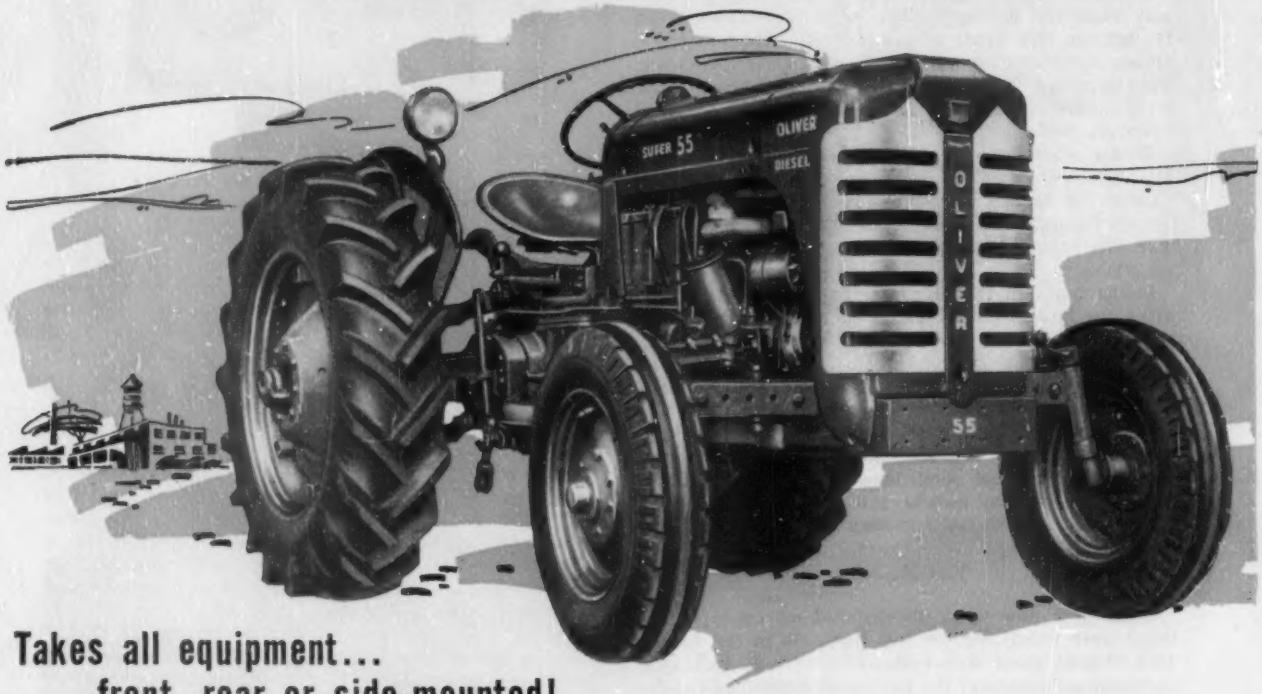
Introducing the Brand-New

Rear-mounted post driver

General-purpose and weed sprayers

OLIVER SUPER 55

the all-new, all-purpose tractor



Takes all equipment... front, rear or side-mounted!

The built-in hydraulic 3-point hitch operates a wide choice of Oliver and other simple, low-cost tools. And the solid, one-piece frame on the Super 55 makes a convenient foundation for front- or side-mounted equipment.

Hydraulic or mechanical mowers

Rear-mounted 6-foot scraper

Other attachments include:

- Rotary and reel-type mowers
- Rear crane lift
- Lifting boom for loaders
- Post hole diggers
- Rear-mounted hydraulic backhoe

Universal frame for dozer blades, snow plows

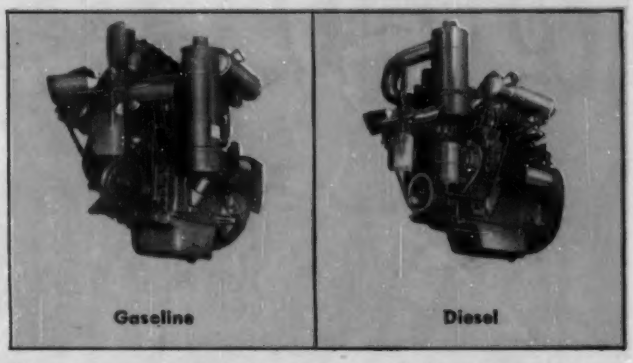
Rear fork lift carrier

All-purpose, 7-cubic-foot scoop

with everything!

Here is the tractor you have been waiting for. A tractor with all the features you have wanted... all the features that make other tractors its size outdated! Waiting for diesel power? Super 55 has both diesel and gasoline. Want a tractor you can use anywhere, with any kind of attachment? Try the Super 55... its greater power, weight... its compact, maneuverable size... and its ability to take front-, rear- or side-mounted tools gives you versatility never before had in any tractor! Just look—

SIX FORWARD SPEEDS—with a new super low of 1½ miles per hour. Gives greater power at slow speeds, less chance of engine stall-out. Straight-through shift from first to reverse low—makes quick reversing easy.



Gasoline

Diesel

Most powerful tractor of its type!

Not only the most powerful, but a huskier, heavier tractor and the *only one* to offer a choice of diesel or gasoline power. Two modern, low-friction, 4-cylinder engines designed to keep your costs at an absolute minimum. Now you can pick the power that fits your needs the best and cuts your costs the most!

LOW AND COMPACT—only 4½ feet high. Built low to the ground for stability, yet has a 21-inch axle clearance. 6-foot wheel base makes tight turns easy in close quarters.

BUILT-IN HYDRAULIC SYSTEM—internal control for 3-point hitch equipment. External control for mounted equipment. Mounted and 3-point tools may be operated together or separately without closing either system.

DOUBLE-DISC BRAKES—give four times the braking surface, yet require half the foot pressure of band brakes. Sure, safe, positive braking forward or back.

EASY STEERING—recirculating ball-type steering mechanism reduces operator fatigue. Makes steering in soft ground tight and maneuvering much easier.

See it, drive it, learn the facts!

Stop in at your Oliver Industrial Distributor. Look this new tractor over. Get behind the controls and give it a try. You'll like the profit-making features of this high-performance, powerful Oliver Super 55. See it today!

The OLIVER Corporation 1-S
400 W. Madison Street
Chicago 6, Illinois

Please send free illustrated catalog on the new Super 55 Tractor.

Name.....
(Please Print)

Company.....

Address.....

City.....*Zone*....*State*.....

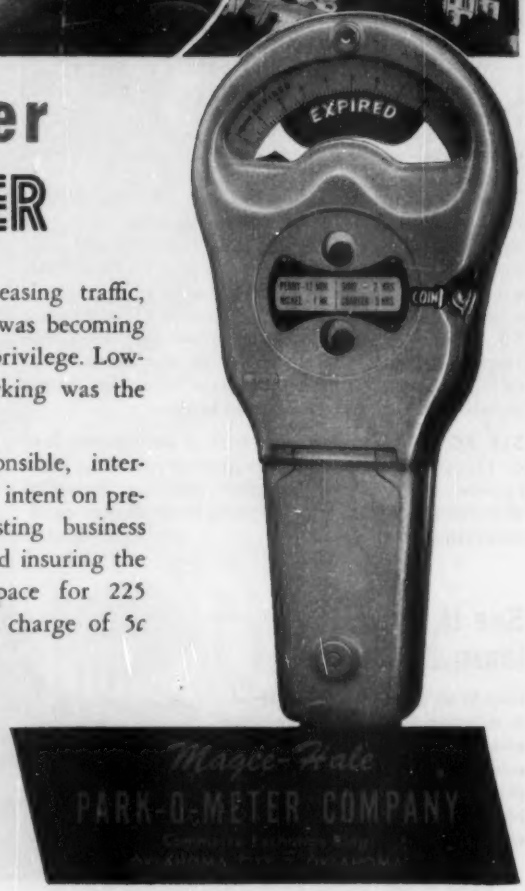
Springfield (OHIO)

found the answer with PARK-O-METER

THE PROBLEM. Merchants, property owners, bankers, realtors and other businessmen in Springfield faced declining sales and profits along with rapid deterioration of property and taxable values. They realized that the only way to reverse the trend was to get people to circulate in the Central Business District . . . *people on their feet* not in autos on the streets.

THE SOLUTION. Because the streets are needed for the movement of ever-increasing traffic, curb-side parking was becoming an all too limited privilege. Low-cost, off-street parking was the only answer.

ACTION. Responsible, interested businessmen, intent on preserving their existing business and investment and insuring the future, created space for 225 cars at a metered charge of 5¢ per hour.



YOUR CITY faces the same problem . . . every city does. Ask us to give you details of the Springfield Plan. There's no obligation on your part.

*The Engineer and His Civic Duty**

By RAYMOND R. TUCKER, *Mayor, St. Louis, Mo.*

In essence, municipal government is the process of providing services to the citizen—protecting his health and his safety, providing him with streets, lights, water, parks, playgrounds, libraries, and zoos, disposing of his wastes and protecting him against the vagaries of nature, his own carelessness, and the weaknesses of others.

In fact, in virtually every significant field of local governmental activity, the knowledges, the aptitudes, and the skills of the professional engineer have been enlisted and adapted. . . .

The engineer, like all other human beings, is a political animal. As such, especially in a democracy, he must shoulder the responsibilities of the citizen.

Though I admit to some possible bias in the matter, it is my conviction that engineers have peculiar, almost unique, qualifications for voting in a democratic society. By temperament, by training, by experience, by all the standards of measurement available, engineers—all of them—could make the very best use of the franchise.

All the Earmarks—Except One

The engineer is a person of objectivity; he must be objective in order to be a successful engineer. He is a careful person — given to cautious and careful analysis of all sides of a problem before he makes a decision. He is a judicious person—not subject to purely emotional appeals or to the razzle dazzle of insincere propaganda. He is a studious person — who realizes that action without adequate knowledge is both foolish and dangerous. In short, he has all the earmarks of effective, responsible citizenship — except one. He lacks the dynamic conviction of his own importance and value as a citizen. He thus adheres too closely to his own specialization — that of engineering, and in greater or lesser degree neglects his duties as a political animal.

The results of this citizen inactivity, for any group, are always bad. For engineers, they are worse. Our wants, and our needs, from our government, are generally in proportion to our professional standards; so we suffer more from inadequate government, both individually and as a group, than our fellow citizens. This state of affairs can be changed. It *must* be changed, by a significant increase in voting participation in all elections, by all engineers. . . .

Today, in this country, at all levels of government, increasing recognition, and increasing influence, on governmental decisions and on governmental actions, is being won by organized groups. The more cynical observers call them "pressure groups." Whatever we call them, however, the fact remains that they

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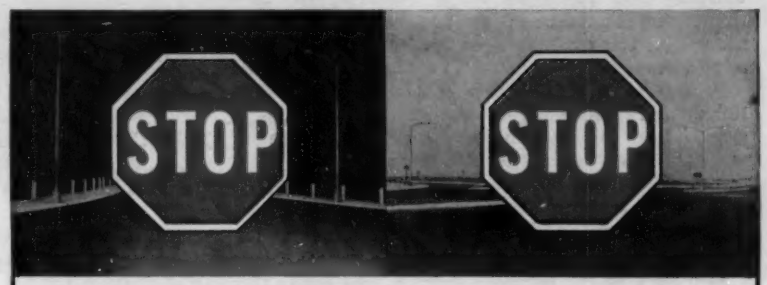
* Excerpts from the Roy V. Wright Lecture, 1954 Semi-Annual Meeting, American Society of Mechanical Engineers, Pittsburgh, Pa., June 22, 1954.

(*Continued on page* 167)



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The new Tassco look in stop signs is destined to save many lives and avert accidents on America's streets and highways!

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Here is the stop sign that can *only* be interpreted as "Danger! STOP!" Its red color cannot be missed or confused with other signs. Most important, Tassco Red Stop Signs are reflectorized in both colors . . . drivers see the same sign, same shape, same colors both day and night!

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Laminated Wooden Ladders Are Safer

THE NEED for an improved type of ladder rail, in wood ladders for fire and utility service, led to tests which indicated the use of glued laminated mixed species of wood for the construction of ladder rails.

Disadvantages of solid wood rail ladders (as compared to metal ladders) are their greater weight and their tendency to fail suddenly and unexpectedly under apparently normal service conditions. Their advantages presented recently by the Chicago Fire Commissioner to the Mayor of that city follows: electrical safety; wood does not warp under extreme heat nor snap under extreme cold; if a wooden ladder burns the danger can easily be seen; easier to repair.

Past research by Herbert B. McKean and Nicholas V. Poletika showed that composite beams which are fabricated with two or more outer laminations of dense, strong wood with a central core of much lighter wood will exhibit a very high 'strength-weight" ratio.

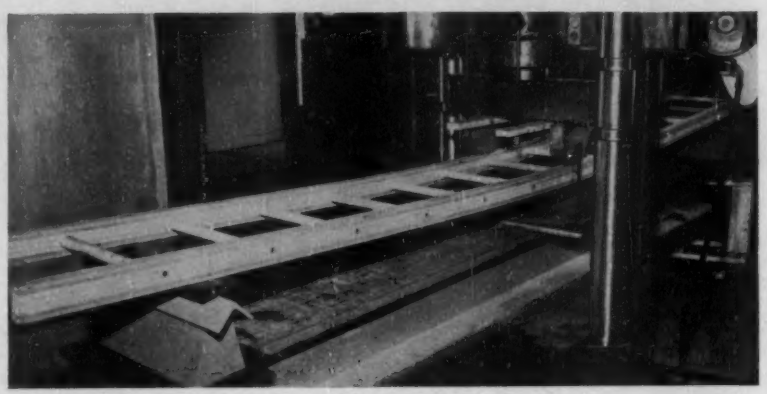
The species selected for use in composite laminated construction were greenheart, true hickory, black walnut, and pecan hickory as preferred flange materials, and Port Orford cedar and Sitka spruce as core materials. The laminated ladder rails tested in this investigation were constructed by the Engineering & Laminating Corporation, of Baltimore, using a phenol-resorcinol-formaldehyde adhesive.

Static bending tests were made on four complete ladders in order to determine the type of failure which might be expected with longer sections. An 11-foot ladder span was used with concentrated loads applied perpendicular at the center of each rail at a uniform rate of speed of 0.2 inches per minute. The method of test is shown in the photograph.

Conclusion

The tests indicate that ladders constructed with laminated composite rails show three distinct advantages over ladders with solid beam rails: they are stronger, stiffer, and have high strength-weight ratios.

EDITORIAL NOTE: The findings in this article are from a report on extensive tests made for the Consolidated Gas, Light and Power Company, of Baltimore, by H. L. von Hohenleiten of that company; Norvelle G. Hundley, wood technologist, Timber Engineering Company, Washington, D. C.; and Frederic C. Jay, vice-president and general manager, Engineering and Laminating Corporation, Baltimore, Md.



Deflection of a ladder with ⅝-inch hickory-oak-Port Orford cedar composite rails at a load of 775 pounds. Pressure tests of this kind are performed as part of a research program to develop stronger and safer ladders for the fire service.

Close Enforcement by El Paso Traffic Division

THE 14 (Harley-Davidson) motorcycle officers and 12 men who ride in El Paso's three-accident investigation cars, accounted for $111,038 in fines on tickets issued for 15,166 moving violations last year, or to about $4,000 per officer—each officer costs the city a total, including equipment costs, of $5,500, according to *The El Paso Times*, Texas.

The officers are not instructed to issue any minimum or given number of tickets. On the contrary, they are told to clock drivers for three blocks before issuing a speeding ticket. Because there are not enough motorcycle officers for uniform coverage of the city, they frequent areas such as Paisano Drive, where the greatest percentage of accidents occur. Only 6% of those receiving traffic tickets in 1953 were found innocent.

Rephrasing of Zoning Ordinances In the Light of Court Decisions

(*Continued from page* 103)

to provide certain limitations to protect the residential character of the district.

A doctor with a growing practice will often attract so many patients that the street will be obstructed with parked automobiles. Often his office will be expanded to include medical assistants, nurses, and office help, resulting in additions to the house, so that it is difficult to draw the line between the main use of a dwelling for residential purposes and the accessory use of a doctor's office.

We have rephrased provisions of ordinances permitting doctors' offices so as to limit the use to the one doctor residing in the home and one employee not required to live on the premises. The doctor is required to provide off-street parking for his patients on his premises. Similar limitations of use have been applied to other professions and occupations permitted as incidental to the single-family dwelling use.

These are just a few illustrations of instances where court decisions have made it important for communities to re-examine and rephrase their zoning ordinance provisions. With building activity proceeding at a rapid pace throughout the country and with frequent zoning cases before the courts accompanying this activity, it will be increasingly important for zoning and other municipal officials to follow the decisions and apply them to their zoning ordinances to keep abreast of the times.

Excerpts from a speech delivered at the 45th Annual New York State Conference of Mayors and Other Municipal Officials, held at Monticello, N. Y., June 16-18.

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Replace your high-cost equipment with the high-quality yet economical Davis ***Pit-Bull***. Only one basic unit . . . but several easy-to-change attachments set you up to handle a multitude of jobs without a big investment in equipment and payroll. The ***Pit-Bull*** is strictly a one-man machine that can be used to load . . . dig . . . sweep or to do many other jobs with a minimum of time spent changing attachments. You buy only the attachments you need.

The ***Pit-Bull*** turns your Ferguson or Ford tractor into a powerful industrial unit. A syncro-mesh transmission with underdrive is installed by the dealer to give you four speeds in either direction and to allow you to change without shifting gears.

A reversal in the seating and steering controls, plus installation of finger-tip ***Pit-Bull*** controls, permits the operator to be *comfortable* and maintain complete control of both the tractor and the ***Pit-Bull*** simultaneously. The ***Pit-Bull*** gives greater versatility, maneuverability, visibility and performance at only a fraction of the cost of conventional equipment.

Ask your dealer for a demonstration or write for details.

The Davis PIT-BULL is manufactured by the makers of the Davis Model 100 Loader, America's Quality, Front-End Tractor Loader.

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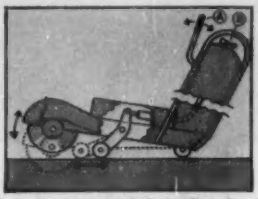
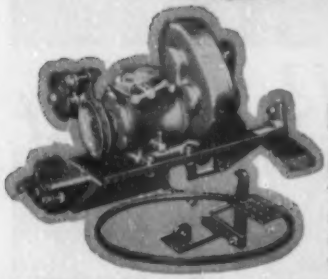
"POWR-DRIVE" smoothly drives saw forward at your controlled speed . . . saves operator effort and increases cutting footage per day. With "POWR-DRIVE" you can instantly regulate the cutting speed to your various cutting requirements. Two abrasive-coated wheels act as a friction drive in contact with both rear saw wheels. "POWR-DRIVE" is engaged or disengaged by a convenient foot lever control. See the amazing Eveready "POWR-DRIVE" Concrete Saw at your local Eveready Dealer.

PATENTED EVEREADY FEATURES

Shown at the right are three exclusive features that make EVEREADY the fastest, most efficient concrete and asphalt cutting saw. Other features are: Dashboard controls for greater ease in operation and maneuvering; blade depth control that permits sawing to a specified depth.

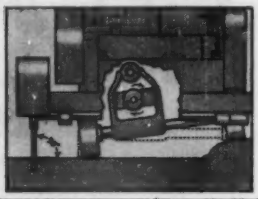


Two easy strokes of Hydra-Eze Handle (A) and hydraulic power lifts blade fast —straight out of cut. Quarter turn of Hydra-Eze Blade Release Lever (B) and hydraulic power feeds blade gently, smoothly into material.



BUY COMPLETE OR ADD THE NEW EVEREADY POWR-DRIVE KIT LATER

The "POWR-DRIVE" Kit comes completely assembled . . . only four holes—four bolts are needed to install the kit on any Eveready Concrete Saw. "POWR-DRIVE" Kits are sold only by authorized Eveready Dealers.



On rough or uneven surfaces—the blade on an EVEREADY Concrete Saw always cuts in a perfect, true, vertical plane. TRI-MATIC BLADE ALIGNMENT prevents binding, twisting, or tilting of the blade as the saw moves over uneven or broken surfaces.

"POWR-DRIVE" cuts MORE Concrete Every Hour . . . Cuts Costs on Every Job! and EVEREADY'S "PROVEN QUALITY" is Your Guarantee for "PROVEN RESULTS"!

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For faster cutting — PLUS maximum blade life — regardless of the type Concrete or Asphalt cut. Red-I-Cut Blades fit EVERY make and model saw.

EVEREADY TUFFIE CONCRETE BLADES

Cut Green Concrete at ONE-THIRD the cost! The NEW "TUFFIE" Abrasive Blade, reinforced with steel wire-mesh, cuts new highway slab—ALL "Green Concrete" slab—at unbelievable savings in labor and blade cost. Your dealer has it NOW!

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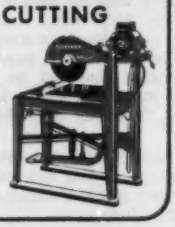
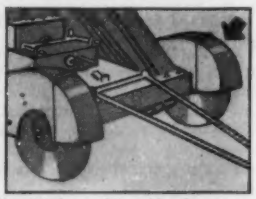


FREE BOOK

FREE BOOK on Masonry cutting . . . requested by more than 18,000 . . . will be sent without obligation . . . or ask your dealer.



Place blade on either side of saw to cut in corners and confined areas. Blade guard, water hose, and front guide wheel marker assembly are all interchangeable.

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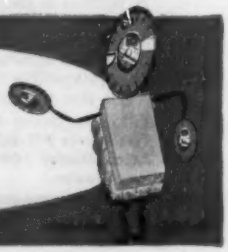

The Engineer and His Civic Duty

(*Continued from page* 163)

are very influential—so very influential, in fact, that one scholarly student of the subject, Pendleton Herring, of the Brookings Institution, has referred to them collectively as the fourth branch of our government.

Why Stay in the Back Row?

But where is the engineer in this picture? If he is in the picture at all, he is generally in the back row somewhere—rarely to be seen, and even more rarely to be heard. Maybe he is too proud to come down into the arena of influence, the actual market place of public affairs. This sort of pride, if pride it be, must give way to practical common sense. The engineer must, both to protect his own professional interests and to play his proper role in promoting the general welfare, cast off his mantle of reticence. He must become more active in civic groups of all kinds—neighborhood associations, improvement groups, local groups, state groups, and even national groups.

Being more active means being more vocal. Engineers are clear and logical now. They must also become *persuasive*. We have a wealth of talent and ability to be made available to the solution of civic problems. But we must cease hiding it all under a bushel. We must learn how to *sell* what we surely can *build*.

Progress and Problems From Engineering Discoveries

In St. Louis today many of our problems have been the result of engineering discoveries and improvements. Engineering must again be called into public service to solve them.

The problems evolve around engineering marvels such as the expressways, water pumping stations, and the like. They were brought into being by engineers, and that same profession must play a prominent part in finding the answers.

In addition to elective officers, there are many appointive offices in government on boards, commissions, and the like calling for the talents of engineers. In such posts, engineers can find a satisfying outlet for all their skills, energies and resources.

Engineers of integrity and ability are needed daily in all municipal governments. There is a crying need and demand for them. Certainly, one of the greatest services an engineer can render is by serving his community in that capacity, or by serving on one of the advisory boards or commissions.

Warning Labels on Hazardous Products Required in N. Y. C. Code

SANITARY CODES requiring manufacturers to place warning labels on products containing hazardous substances were put into effect on August 27 by the New York City and New York State Departments of Health. The new codes, which prohibit the sale, distribution, or supply of hazardous compounds not bearing a warning label, supplement existing codes that require warning labels on products containing outright poisons.

Furniture polish, paint removers, Drug cleaners, metal polishes, "fix it" preparations for homeowners, and vaporizing chemicals for insects are among the types of products listed as possibly containing hazardous materials.

Records show that during 1953, 16 deaths occurred in New York City from such materials.

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THE **NEW** STANDARD 4-WAY SELF-CONTAINED— SELF-SUFFICIENT SIGNAL

The Dual Duty

"TRAFFIC SENTRY"

Equipped with I.T.E. approved 8⅜" diameter prismatic diffusing lenses. Each lens is illuminated independently.

TRAFFIC SENTRY acts immediately as an official fixed, steady signal for as long as needed at any unguarded intersection or crossing . . .

THEN . . . PRESTO!

BEING UNIQUELY PORTABLE

it can be towed easily and promptly to any critical location . . . rolled into place on its own wheels by one person—to assert its guidance and authority and expedite traffic while economically protecting pedestrians and drivers long before any expensive permanent or stationary installation can be made.

PROFIT BY THE EXPERIENCE OF TRAFFIC AUTHORITIES IN MANY CITIES WHERE "TRAFFIC SENTRIES" ARE IN CONSTANT USE AT LOCATIONS WHICH, FOR SEVERAL HOURS DAILY, FORMERLY REQUIRED THE SERVICES OF THREE OFFICERS.

The **"TRAFFIC SENTRY"** is a standard signal, designed to conform to standards set forth in the Manual on Uniform Traffic Control Devices for Streets and Highways.

For further information and illustrated brochure, address

PORTABLE TRAFFIC SIGNALS, INC.

Manufacturers of "TRAFFIC SENTRY"

146 West 21st STREET LOS ANGELES 7, CALIF.

THE ALL NEW HEIL

- FAST CYCLE TIME
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- BULLDOZER TYPE PACKING PLATE FOR BETTER PACKING

Here's the completely new Heil Colectomatic containing all the best features suggested by municipal operating crews, inspectors, supervisors and private refuse collection operators. The result is the simplest, safest and easiest-to-operate-and-service collection unit on the market for fast, clean, economical refuse pick-up!

See the New COLECTOMATIC at the American Public Works Congress
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CLEAN, ODOR-FREE COLLECTION because liquids cannot drain out of the body to the street or back into the hopper.

SHORT, OVERALL LENGTH AND HEIGHT make the Colectomatic easier to handle in narrow alleys and restricted areas.

BALANCED WEIGHT DISTRIBUTION results from forward location of the tailgate hinges which puts more of the tailgate weight on the truck longitudinals rather than hanging over them at the rear of the body.

ONLY THREE HYDRAULIC CYLINDERS REQUIRED — two for packing and tailgate operation and one for dumping—none of which can be damaged from corrosion by direct contact with refuse and garbage.

FITS STANDARD TRUCK CHASSIS —cab-over-engine or conventional models—102" CA single axle or 84" CA tandem axle.

ATTRACTIVE APPEARANCE and clean body lines have definite eye-appeal and advertise modern sanitation methods to citizens and visitors alike.

QUIET PACKING OPERATION UNDER ALL CONDITIONS with no continuously moving chains and only slight engine acceleration for packing operations.

NO RETAINER PLATE necessary since packing plate holds load in body.

PUSH BUTTONS at the rear connected to buzzer in the cab signal driver when pick-up is completed.

RIDING STEPS at rear, bucket and shovel hooks included as standard equipment.

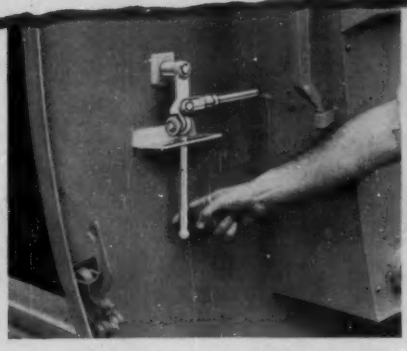
COMPLETE SAFETY TO COLLECTORS, children and bystanders is assured by the entirely enclosed packing mechanism which prevents material from flying back out of the hopper.

SEND FOR BULLETIN BH-54103 for the complete story or see your nearest Heil Body and Hoist distributor for a demonstration.

COLECTOMATIC

THE FIRST SANITARY REFUSE COLLECTION UNIT EVER DESIGNED BY YOU—THE USER!

● FLAT BODY FLOOR of the Colectomatic has no wheel housings or ramps over which refuse must be pushed either when packing or dumping. Three inch body taper from front to rear assures easy, swift discharge.



● FINGER TIP CONTROL actuates automatic packing cycle. A flick of one lever closes the safety door, sweeps the load into the body and packs it, opens the safety door for the next load—all in an average time of 22 seconds.

● LOW, WIDE LOADING SILL with plenty of headroom and elbow-room allows two collectors to easily empty refuse at the same time with minimum effort. Hopper height is same as truck chassis longitudinals.

● STOPPAGE CONTROL SAVES TIME, PREVENTS DAMAGE if anything should stick between hopper and packer plate. Quick, simple adjustment drops hinged hopper away from packing plate. No time lost digging out jammed material.

● EASY ACCESSIBILITY FOR SERVICING is provided by a 3-section door on each side of the body. Doors can be opened quickly and easily to expose entire working mechanism so it can be serviced from a standing position.

● FAST DUMPING of the Colectomatic is assured by one Heil precision-built hydraulic cylinder which raises body to 45° dumping angle (50° optional). Ample clearance between raised tailgate and ground allows easy drive-away after dumping.

FAST BULLDOZER-ACTION LOADING CYCLE FOR BETTER PACKING...

● With the hopper filled, the finger-tip control closes the safety door and automatically the packer plate moves backward as the hopper rises.

● Packer plate forces refuse out of hopper into the body, continues to roll the refuse with a bulldozing action exerting 22 tons of pressure against material.

● When packer plate reaches farthest forward point of its course of travel, the hopper is completely emptied and returns to loading position.

● With hopper back in place, packer plate remains at forward position retaining the refuse in the body and safety gate opens for the next load.

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Ramps are a big step forward in relieving the ever-increasing traffic problem because they provide additional parking areas without sacrificing valuable street space. The New Albany, Indiana municipal ramp illustrated here is a good example. It will accommodate approximately 130 cars within a comparatively small area. This is an ideal installation since the ramp is also a connecting roadway between two street levels. On its four parking areas, 130 MI-CO Manual Meters have been installed. And because MI-COs are such high producers, the revenue from these 130 meters will go a long way toward paying the cost of the project.

If parking space is a problem in your city, why not check into the ramp idea, or off-the-street parking lots. Some localities have provided under-the-street parking areas. But whatever plan you choose, be sure to install MI-CO Parking Meters because they will help defray the cost in the shortest possible time, and go on paying revenue long after the original investment has been amortized.

MI-CO manufactures two types of parking meters—the dependable MI-CO Manual, and the equally reliable MI-CO Twin Automatic. Both have their advantages, and may be set for any time or coin arrangement. Both have excellent records for consistently high earnings over long periods of time, and unusually low maintenance expense.

MI-CO parking experts will be glad to give you the benefit of their experience, and recommend the type of meter best suited to your requirements. Records of installations from all sections of this country and some foreign lands will be sent on request. Details of the structural features of MI-CO meters which have made these reports possible will also be furnished.

Before you buy any meters, it will be to your advantage to find out how much more MI-CO has to offer for your parking meter dollar.

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Freight Line Proposed for New York's Second Avenue Subway

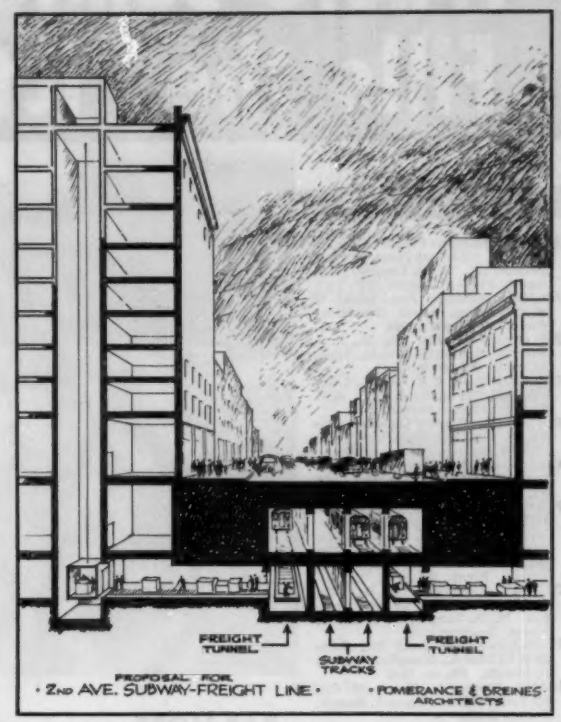
NOTING that because of financial problems New York City is taking pause on the question of a new Second Avenue Subway, the New York architectural firm of Pomerance & Breines believes that consideration should be given to designing the subway to handle freight as well as passenger traffic. Manhattan's gridiron street system is inadequate to cope with the vehicular traffic of today. Therefore, they urge that a freight line be incorporated in the Second Avenue Subway in order to help eliminate an important element of congestion at the street level.

The proposed freight line would have an Uptown Transfer-Terminal in the Bronx which could handle incoming and outgoing freight from several major routes: by rail through the New York, New Haven & Hartford Railroad's adjacent freight yards; by truck over the Major Deegan Expressway, connecting with the 500-mile New York State Thruway to the north and west, and the Bruckner Boulevard–New England Thruway to Boston.

At the downtown end of the proposed subsurface freight line, a Downtown Transfer–Terminal would be related to the Queens Tunnel and a possible Mid-Town Expressway that will some day be built across Manhattan.

At these two main terminal points, freight would be unloaded at the street level from the railroad and interstate trucks; then sorted and transferred to special light-weight freight carriers at subsurface level; and distributed to transfer depots along Second Avenue. In many cases, the architects say, delivery could be made directly to buildings from the basement.

The freight line itself might take the form of a railroad (though an unorthodox one), trackless tramway, moving platforms, or even a motorized vehicular route. Instead of sidings, it would be supplemented by branch spurs incorporating mechanical devices such as conveyor belts, overhead cable hooks, chutes and pneumatic tubes.



The accompanying sketch illustrates how the proposed freight line would be combined with the Second Avenue Subway.

Tucson, Ariz., Commissions an Honorary Ambassador

Left to right: Mrs. Richard A. Havrill, president of Tucson-Trikala Affiliation; Miss Phany N. Kostopoulou, student from Trikala, and Fred Emery, Mayor of the City of Tucson, Ariz.

A RECENT ACTION of the Tucson City Council commissioned pretty Phany Nina Kostopoulou as Honorary Ambassador from the Sunshine City to Miss Kostopoulou's home town of Trikala, Thessaly, Greece. For the past four years Miss Kostopoulou has been living and studying in Tucson at University of Arizona in fulfillment of one phase of the community affiliation program that exists between Tucson and Trikala.

The program was begun in 1949 by the then Mayor E. T. Houston. In addition to bringing Miss Kostopoulou and a fellow Trikala resident to the University of Arizona, the affiliation program provides scholarships for two Trikalan girls to study social services in Greece.

The citation from the City Council read as follows:

To Phany Nina Kostopoulou, Citizen of Trikala, chosen by competitive examination sponsored by the Tucson-Trikala Affiliation for study in Tucson at the University of Arizona, guest in Tucson of the Chi Omega Sorority, and graduate of the University of Arizona: The City of Tucson, Arizona, U. S. A., bestows on you the title of "Honorary Ambassador from the Sunshine City" and commissions you to extend best wishes from the people of Tucson to the people of Trikala.

FRED EMERY, *Mayor*
Tucson, Ariz.

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PAK-MORS everywhere in the principal square of Mexico City with the two-building City Hall as a background. Inset shows President Don Adolfo Ruiz Cortines with a driver at left and at right (light suit) is Mayor Ernesto P. Uruchurtu and Chief of General Services, Lopez Palafox. It's June 11, 1954 and the city's new PAK-MORS are being inspected.

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Recreation Program Proposed for Group of Tennessee Communities

RECOMMENDATIONS for an enlarged recreation program for the cities of Maryville and Alcoa, and for Blount County in Tennessee are presented in a report titled, "Public Recreation—A Plan for Community Action," prepared by a special Recreation Study Committee in the communities involved. The Committee, headed by Frank D. McClelland, consists of representatives of both public and private groups interested in the recreation needs of the Maryville-Alcoa-Blount County area.

Adopting the slogan, "program first, more facilities later," the report suggests two alternative means of establishing a year-round recreation program for the 20,000 person population living in the area, which lies south of Knoxville and north of the Great Smoky Mountain National Park. Both plans call for the formation of official recreation commissions in Alcoa, Maryville, and Blount County. Similarly, both plans call for the coordination of recreation activities in all three areas.

Under plan number one, Blount County would hire a full-time recreation director who would have immediate authority over the activities in the portions of the County outside Alcoa and Maryville. This director would also act as coordinator for recreation activities in Alcoa and Maryville.

Under plan number two, the City of Maryville would hire a full-time recreation director to oversee activities not only inside that city but to coordinate a program for the entire area, depending upon financing and working arrangements with Alcoa and Blount County.

Summer Program Failure

In calling for full-time recreation activity in the area, the Recreation Study Committee points out the following reasons why an exclusive reliance on summer programs often fails to meet the needs of communities: (1) the staffs for most summer recreation programs are often made up of older high school or college students or teachers who usually have little time between the ending of a school year and the official start of a summer program to give to the proper planning of the program; (2) because of this lack of planning there is often a heavy reliance on athletic events thus leaving untouched other types of recreation activities which might appeal to other segments of the community, and (3) dissatisfaction often sets in after the close of a summer program because of the lack of continuity in the program for the rest of the year.

The Recreation Study Committee's report was prepared in cooperation with the Division of State Planning, Tennessee State Planning Commission and the Division of State Parks, Tennessee Department of Conservation.

Central Garage Opens in University City— *Unique Financing Plan*

New central garage of University City, Mo.

A NEW central garage to provide service and maintenance facilities for all city equipment except vehicles used in the Fire Department has been opened in University City, Mo. In addition to city equipment, a library bookmobile and vehicles of the public school system will be serviced and maintained in the building on a cost basis.

Constructed of buff-colored brick to harmonize with surrounding architecture, the central garage provides over 10,000 square feet of floor space at a cost of $120,000. Offices of the Garage and Refuse Superintendent, Street Commissioner, and Park Maintenance Superintendent are located in a one-story wing at the front of the building.

Funds for starting the operation of the garage were transferred from the general fund into a revolving garage fund. Ownership of equipment, formerly vested in the various departments, has been transferred to the central garage. Departments are charged for rental of this equipment, and rental charges include costs for operation, maintenance, overhead, and depreciation.

Depreciation reserves are established for the garage building and the equipment. For the first few years of operation, rental charges will be slightly higher to provide depreciation allowances for equipment now in use. After depreciation reserves have been established, new equipment will be purchased from these reserves. This is expected to eliminate some of the strain that major equipment purchase places on the annual budget.

Shares Insurance Costs

THE City of Alhambra, Calif., recently instituted a policy of paying one-half the premium of its employees' group medical insurance. This amounts to $2.34 a month for each employee.

"Cities have been as lamps of life along the pathways of humanity. Behind their walls, freedom has fought her noblest battles. They have stood on the surface of the earth like great breakwaters rolling back or turning aside the swelling tide of oppression. Cities, indeed, have been the cradles of human liberty. They have been the active sentries of almost all reformation."

—Thomas Guthrie

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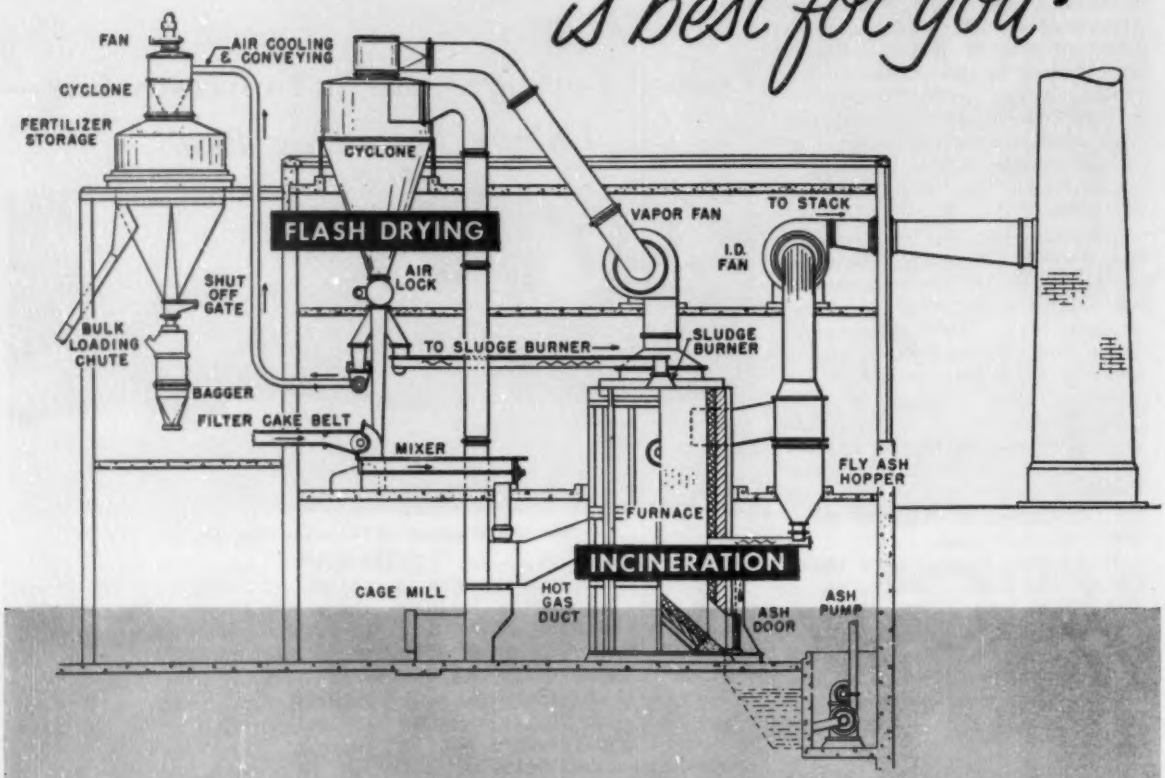

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Zoning and Planning Notes

Edited by NORMAN WILLIAMS, Jr.

Accessory Uses in Residence Districts—Storage of Village Highway Equipment

NEW YORK. *Stiger* v. *Village of Hewlett Bay Park*, 129 New York Supplement (2d) 38 (Appellate Division, March 29, 1954).

A small village, with approximately 130 single-family houses and a population of a little over 500, had only one full-time public employee. A garage structure, looking like an ordinary residential garage, and located on a lot leased by the Village to a private school, was used to store Village equipment, including a truck and tractor. Neighboring property owners agreed that this represented a violation of the local zoning ordinance, which divided the Village into three residence districts and in each permitted *only* single-family detached houses and accessory uses. Apparently no place for storage of such equipment could be obtained within a reasonable distance outside the Village. In a memorandum opinion, the Court held that storage of Village equipment in such a structure did not violate the ordinance, and that the Village could not have intended to deprive itself of this right.

Exceptions to Lot Width and Lot Size Requirements

RHODE ISLAND. *Carey* v. *Cassidy*, 103 Atlantic (2d) 793 (Supreme Court, March 31, 1954).

NEW YORK. *Weissmantel* v. *Village of Sands Point*, 129 New York Supplement (2d) 640 (Supreme Court, January 18, 1954).

NEW YORK. *Lengel* v. *Pirnie*, 128 New York Supplement (2d) 490 (Supreme Court, January 5, 1954).

In the Rhode Island case, the Newport zoning regulations for the appropriate district forbade more than two families per 20,000 square feet, and application was made to convert a barn into 4 apartments on a lot smaller than that. The Zoning Board of Review granted a permit authorizing the conversion, apparently as an "exception". On appeal, the Rhode Island Court held that the Newport zoning ordinance did not authorize such an "exception."

The Court held that the ordinance provision forbidding more than two families per 20,000 square feet in this district was mandatory, and that nothing else in the ordinance empowered the Board to vary this provision, at least without a showing of special hardship. A provision authorizing changes in "restrictions as to area" (together with height and yards) was held to refer to lot coverage and to have nothing to do with the requirements on minimum lot area per dwelling.

In the Sands Point case, the ordinance required one acre for residential development in the district involved. This case was concerned with an irregularly shaped parcel, which included just over an acre if a narrow strip 240 feet long and varying from 5 to 10 feet in width were included in the calculation of lot area, but which was just under an acre if that strip were excluded. After the application came up, the local zoning ordinance was amended to prohibit inclusion of any area less than 75 feet wide, or any area within a right of way, in fulfilling the 1-acre requirement. In the opinion, the Court held that the Village could not amend the ordinance so as to deprive plaintiff of the right to use her property.

In *Lengel* v. *Pirnie*, the Scarsdale zoning ordinance required 100 feet of frontage in the district involved—but exempted certain existing smaller lots, except where two adjacent lots were held in common ownership. At the time this regulation was put into effect, two adjacent lots, located near the end of a cul-de-sac and with frontages of 58 and 77 feet, were held in common ownership. After this, allegedly without knowledge of the frontage requirements, the larger of the two lots was sold. The subdivision had been approved by the local Planning Board in 1941, and both lots complied with zoning regulations in other respects. A permit to build on the smaller lot was refused, partly on the ground that whatever hardship existed was self-imposed but this refusal was invalidated in Court.

In arguing the case, the Village authorities apparently attempted to justify the special restrictions on two adjacent lots in common ownership not as an integral part of a workable scheme of density regulations, with only the really necessary compromise—but primarily by arguing that it was all right to impose special restrictions on frontage on cul-de-sacs, because through streets were better for the Village. In this context, the Court held that the exception to the existing narrow-lot clause—applying the regular frontage regulations to two adjacent lots in common ownership—could not be justified since a cul-de-sac already existed instead of a through street, and since such a provision necessarily discriminated even against some properties bordering on cul-de-sacs as compared with others.

Obviously any zoning regulation which results in preventing any building on an existing lot will be carefully scrutinized; and so minimum lot-size and frontage regulations need a carefully worked-out escape clause. The Sands Point ordinance had none for the situation involved; in fact, apparently the ordinance amendment was passed specifically to cover a situation which had already arisen—a practice which the courts usually frown upon, and with good reason. Yet the other New York case raises serious problems.

If it is to be construed as a holding that adjacent lots in common ownership, not conforming to minimum frontage regulations, cannot under any circumstances be required to be combined, then—as a matter of constitutional law—a rather serious hole has been punched into density controls in half-built-up areas. However, since the case was argued primarily on weak grounds—the desirability of discouraging cul-de-sac subdivisions by imposing special penalties on certain lots in existing (and officially approved) subdivisions of this type—this case can hardly be considered a definitive holding on such a device for density control.

Nursery School Different From Day Camp—Accessory Use

NEW YORK. *Margo Operating Corp.* v. *Village of Great Neck*, 129 New York Supplement (2d) 436 (Supreme Court, Feburuary 15, 1954, March 30, 1954).

In this case, a private nursery school, kindergarten, and primary school had been operated in a residence district for a number of years. Since the applicable zoning regulations permitted only public and parochial schools, the establishment was a nonconforming use. In 1951, after a change of ownership, the summer operations of the school were considerably expanded, with twice as many children, including children of different ages. The Village authorities argued that these enlarged operations involved a summer day camp rather than a school, and that this was in violation of the ordinance. The Court held in favor of the Village.

In the opinion, after noting that "The line between education and recreation is one narrow and difficult of definition," the Court stated that the enlarged operation during the summer months did constitute a different use from that during the rest of the year, and was thus not an anpropriate accessory use thereto. Th eCourt also held that the provisions forbidding private schools but permitting public or parochial schools were discriminatory and unenforceable. In this respect, the Court agreed with *State* vs. *North Western Preparatory School*, 228 Minnesota 363, 37 North Western (2d) 376 (1949).

Racial Covenants—Broker's Commission, and Recovery Of Deposit

DISTRICT OF COLUMBIA. *Savage* v. *Parks*, 190 Atlantic (2d) 450 (Municipal Court of Appeals, November 18, 1953).

In this case, a Negro couple signed a contract to purchase a house, and deposited $1,000 with the broker. Apparently they had been assured that there was no racial covenant covering the property. When the title search disclosed a racial covenant, the purchasers refused to complete the deal and demanded the return of the deposit. The seller and the broker counter-claimed for the deposit and for a commission on the sale.

In the opinion, the Court held first that the purchasers had a right to rescind the agreement and demand return of the deposit. In this connection, the Court said that "The law does not require a purchaser to borrow trouble of the future—or even the prospect of trouble." Second, the question whether the broker had earned a commission was held to be a more difficult one. However, the Court here held that the broker was so much an active participant in the negotiations that he had assumed the risk that search of the title would bring to light a racial covenant, and with it collapse of the deal and of his right to a commission.

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Assessments—Fixing of Property Values Without Notice or Hearing Invalid

Where city board of equalization without notice or hearing increased valuation of property of taxpayers, held that injunction would lie since board applied "foresight" rather than "hindsight" test as to values and proper notice was not given. *City of Arlington* v. *Cannon*, 263 S. W. (2d) 299 (Tex. Civ. App., Nov. 27, 1953). *Reh den.* Jan. 8, 1954.

Beer—Prohibiting Sale Within 5,000 Feet of School or Church Valid

In action to have declared unconstitutional ordinance prohibiting sale of beer within 5,000 feet of any school or church, held that under statute permitting municipalities to control and restrict sale of beer, ordinance was constitutional even though it in effect prohibited sale of beer in entire town. *Rule* v. *Town of Etowah*, 263 S. W. (2d) 498 (Tenn., Dec. 11, 1953).

Burlesque Shows—Denial of License to Exhibit

In action to compel Union City to issue license to exhibit burlesque shows, held that exhibition of two objectional movies, three and five years earlier, in theater operated thirteen years by corporation seeking present license did not establish such intention to exhibit lewd burlesque shows as would justify refusal to issue license. *D. B. M. Amusement Corp.* v. *Thourot*, 102A (2d) 774 (N. J., Feb. 5, 1954).

Bus Franchises—Nonexclusive—Right of Holder to Enjoin Company Without from Competing

In action by bus company holding franchise from City of Jackson against another bus company to enjoin operations without franchise, held that nonexclusive franchise was valuable property right, and that bus company was entitled to bring suit against other company which was operating without franchise from city to enjoin said operations. *Payne* v. *Jackson City Lines, Inc.*, 70 So. (2d) 520 (Miss., Feb. 22, 1954).

City Attorney—Mandamus to Compel Defense or Institution of Suit on Behalf of City—Charter

In mandamus by taxpayer to compel city attorney of Columbus to institute suit on behalf of city against transit company and electric company for damages to city streets occasioned by operation of buses, held that under city charter city attorney could be compelled to defend suit in which city was named as defendant, but that city attorney was not obligated to institute suit against transit and electric company at instance of taxpayer. *Reiss* v. *Gordon*, 117 N. E. (2d) 709 (Ohio App. Franklin Cty., Sept. 17, 1951).

City Market—Right of Borough To Abandon—Dedication

In action by taxpayers to quiet title against borough which intended to abandon public market and erect building on realty for some other public purpose, held that long usage of realty for public market did not impair public authority to use it for any other public purpose where dedication for public use was in general terms. *Bruker* v. *Burgess and Town Council of Borough of Carlisle*, 102 A (2d) 418 (Pa., Jan 13, 1954). *Reh. den.* Feb. 13, 1954.

Competitive Bidding—Qualification of Bidders' Requirement of Local Business

In taxpayer's action to enjoin city from executing contract for purchase of furniture and equipment from successful bidder, held that injunction would issue where acceptance of bids was in violation of the qualifications regarding bidders as well as the city charter requiring bidders be regularly engaged in business covered by the proposal and to have place of business or warehouse in the city. *Cohen* v. *City of New York*, 127 N. Y. S. (2d) 617 (N. Y. Sup. Ct., Bronx Cty., Sept 23, 1954).

Disorderly Conduct—Speaker Causing Large Crowd on Sidewalk and Street—Conviction Upheld

Where accused was charged with disorderly conduct in that he, while speaking on public street, caused large crowd to gather which impeded vehicular and pedestrian traffic, and refused to move close to the curb on order of police officer, held that directions given by police officer were reasonable and within the scope of his obligation to maintain free flow of traffic and accused was guilty of disorderly conduct. *People* v. *Kunz*, 128 N. Y. S. (2d) 157 (N. Y., N. Y. City Magis. Ct., Feb. 18, 1954).

Loyalty Oath—Dismissal of Nurse At City Hospital for Refusal to Take Upheld—Statute Valid

Where staff nurse at city hospital was dismissed for refusal to take loyalty oath required by Loyalty Act, that she did not advocate and was not knowingly a member of organization advocating overthrow of government by force or other unconstitutional means, and she sought by mandamus to compel city and city hospital board to reinstate her, on the ground state act was unconstitutional, held that loyalty oath is not unduly vague, does not infringe constitutional rights of free speech, peaceable assembly, free communication of thoughts and opinions and freedom from interference with right of conscience, and is not too broad in its coverage as applied to nurse in municipal hospital. *Fitzgerald* v. *City of Philadelphia* 102 Atl. (2d) 887 (Pa., Feb. 10, 1954). *Reh. den.* Mar. 4, 1954.

Policemen—Right to Salary for Period of Suspension Upon Acquittal

In action by city against reinstated police officer for declaratory judgment that he had no claim for back salary for period of suspension, held that police officer was entitled to back pay for period of suspension upon his acquittal of criminal charges. *City of New Orleans* v. *Jackson*, 70 So. (2d) 679 (La., Dec. 14, 1953). *Reh. den.* Feb. 15, 1954.

Railroad Crossings—Ordinance Limiting Speed of Trains Invalid

In action for death caused by negligence of defendant in running its train in excess of ten miles per hour across grade crossing in violation of village ordinance, held, in dismissing complaint and holding ordinance invalid, that creation of Commerce Commission under the Public Utilities Act withdrew from Village of Raymond power to regulate speed and operation of trains within its corporate limits. *Hemphill* v. *Wabash R. Co.*, 209 Fed. (2d) 768 (U. S. C. A., 7th Cir., Jan. 7, 1954). *Reh. den.* Feb. 17, 1954.

Sewers—Defective Causing Damage To Federal Property—Notice of Defect to City Required

In action against storage company and city for damages to government-owned hemp stored in company's basement, held that city not liable for defective condition of sewer which flooded basement until after receiving notice of defective sewer and then having reasonable time to repair defect. *United States* v. *City of Columbus, Ohio*, 209 Fed. (2d) 857 (U. S. C. A., 6th Cir., Jan. 22, 1954).

Sidewalks—Oral Deposition to City Agent Within Ninety Days Held Proper Notice

In action against city for injuries from fall on sidewalk, wherein plaintiff stated incorrect date of alleged accident in her petition but gave correct date in deposition given to city's agent, held that deposition statement made by plaintiff orally under oath to city's agent within ninety days of accident and reduced to writing by said agent, constituted notice and sufficiently complied with statute requiring that injured claimant give notice to city within ninety days. *Brickell* v. *Kansas City, Mo.*, 265 S. W. (2d) 342 (Mo., Mar. 8, 1954).

Sound Trucks—County Ordinance Invalid for Lack of Standards

In action to enjoin enforcement of ordinance prohibiting emission or transmission of loud and raucous noises on public highways, held that provision of ordinance prohibiting human voice or record which amplifies to such an extent as to carry on to private property or to be heard by others using public highways, without standards to gauge whether sounds interfere with peace and quiet of others, was invalid as an unconstitutional abridgment and denial of the right of free speech. *Haggerty* v. *Fresno County*, 267 Pac. (2d) 370 (Cal. App., March 2, 1954).

Streets—Lease by City for Erection of Building—Injunction Denied

Where City of Groveton leased portion of city street for erection of building, and owners of lots nearby allowed building to be erected at cost of $15,000 without challenging encroachment on street for long period of time, held that owners of lots were estopped to maintain suit for mandatory injunction to require removal of so much of building as encroached on street. *Atmar* v. *Magee*, 264 S. W. (2d) 507 (Tex. Civ. App., Jan. 21, 1954). *Reh. den.* Feb. 11, 1954.

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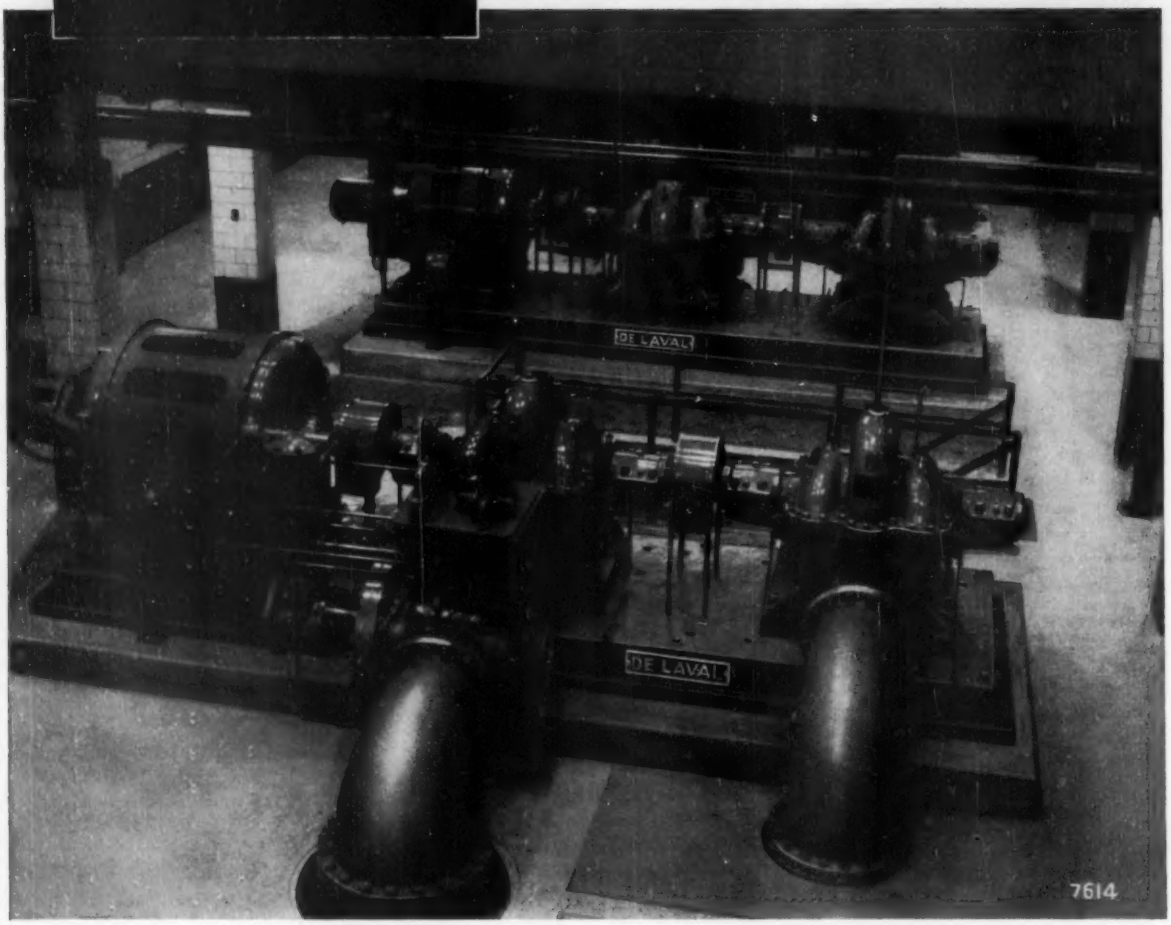

These 15 mgd, 288 foot-head centrifugal pumps are among the total of nine De Laval units that provide a new, all-time high in water availability at Allentown, Pa. Full capacity is 42 mgd, present consumption 25 mgd — a "cushion" of 68% against the heavier demands of future years.

Part of the problem in setting up this big, new facility was to utilize as much equipment as possible from the old plant. Here, De Laval versatility paid off, for several units which had already been in use for twenty years tied in easily, economically, with the new system.

More than 80% of America's cities look to De Laval for the utmost in pump performance and dependability. And they profit daily from De Laval's fifty three years of experience in municipal water works pumping. De Laval units range in capacity from 100 thousand to 100 million gallons per day.

DE LAVAL *Centrifugal Pumps*

DE LAVAL STEAM TURBINE COMPANY

866 Nottingham Way, Trenton 2, New Jersey

LL 226

Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

J. W. True
Hampton, N. H.

Leo J. Morency
Mexico, Maine

George Rounthwaite
Las Vegas, Nev.

James R. Schubert
Lake Mills, Wis.

Arthur Blessing
Schenectady, N. Y.

Dalhart, Texas, has appointed EVETT N. ALLEN, formerly assistant manager at Long Beach, Calif., to succeed R. Marshall Bingham, as city manager.

The first manager of Parsippany-Troy Hills, N. J., is JOHN P. BATCHELEDER, former manager of Pelham Manor, N. Y.

THOMAS S. BELMONT, formerly with the Bureau of Traffic Safety in New Jersey, was appointed first city manager of Monticello, N. Y.

Clarks Summit, Pa., has appointed JONATHAN G. BENEDICT, former assistant manager at Portland, Maine, to succeed William P. Hatch as city manager.

The first manager of Sea Gate (Brooklyn), N. Y., is NORMAN BLACHER, formerly with building and research at Kansas City, Mo.

GARLAND P. FRANKS, former manager of Mt. Pleasant, Texas, was appointed city manager of Sweetwater, Texas, succeeding Henry B. Nabers.

The former public works director of South Norfolk, Va., HAROLD D. HAMNER, was appointed city manager of Front Royal, Va., succeeding L. B. Dutrow who is retiring.

Cadillac, Mich., appointed A. HANSON, former director of education, to succeed Max Davenport as city manager.

Suceeding R. L. Maynard as city manager of Eustis, Fla., is ROY E. HORST, a former city councilman.

JOHN MADDEN, the former Skowhegan Postmaster, was appointed city manager of Norridgewock, Maine, succeeding Edith B. Black.

The first manager of Casa Grande, Ariz., is E. M. PEDERSON, formerly city clerk.

Orrington, Maine, has appointed HARRY B. RIPLEY, formerly an engineer with the U. S. Army, to succeed H. B. Gilbert as city manager.

CHARLES A. ROSS, former manager of Ashland, was appointed city manager of Machias, Maine, succeeding Jerry G. Haynes.

Succeeding P. G. Brown as city manager of Santa Barbara, Calif., is ROBERT H. SHELTON, formerly assistant manager at Modesto, Calif.

DEANE P. WILEY, former manager of Marshall, Mo., was appointed city manager of Garden City, Kans., succeeding Robert Peart.

CLARENCE E. RIDLEY
Executive Director
International City Managers' Association

Newark Mayor Selects Business Administrator

A PROFESSIONAL city official, nationally recognized leader in the public works field, has become the first Business Administrator for the City of Newark, N. J., under its new charter.

John S. Flockhart

John S. Flockhart, former city engineer, and a past president of the American Public Works Association, and a 33-year veteran in Newark's city government, was named to the new post by Mayor Leo P. Carlin.

The business administrator, often referred to as an alternate to a city manager,* places in Mr. Flockhart's hands responsibility for the city's three principal divisions: budget, personnel, and central purchase. It also gives him authority over the city's seven other departments; he has limited control over Law and Finance; limited supervision covering budget, personnel and purchases; complete control of the departments of fire, police, health and welfare, public works, and revenue.

Mr. Flockhart is a graduate of Brooklyn Polytechnic Institute and has studied at Stevens Institute of Technology and Newark College of Engineering.

* See THE AMERICAN CITY, February 1954, page 106, "Newark Gets a Modern City Charter."

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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Sept. 9-10—Montauk, L. I.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Annual Fall Meeting (Montauk Manor). Sec.-Treas., Kimball Blanchard, 50 W. 50th St., New York 20.

Sept. 12-14—Williston, N. D.
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Meeting (Plainsman Hotel). Exec. Sec., Roberta C. Burr, 504½ Main Ave., Bismarck, N. D.

Sept. 12-15—San Francisco, Calif.
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Meeting (St. Francis Hotel). General Counsel, Charles S. Rhyne, 726 Jackson Pl. NW., Washington 6, D. C.

Sept. 12-16—Spokane, Wash.
NATIONAL CONFERENCE OF STATE PARKS. Traveling meeting beginning at Spokane and ending at Olympic Peninsula (Lake Crescent Lodge). Exec. Sec., Miss Harlean James, 901 Union Trust Bldg., Washington 5, D. C.

Sept. 13-15—Shawnee-on-Delaware, Pa.
GOVERNMENTAL RESEARCH ASSOCIATION. Annual Meeting (Shawnee Inn). Sec., Elsie V. Haas, 684 Park Ave., New York 21, N. Y.

Sept. 13-16—Atlantic City, N. J.
ILLUMINATING ENGINEERING SOCIETY. Annual Meeting (Chalfonte-Haddon Hall). Exec. Sec., A. D. Hinckley, 1860 Broadway, New York 23, N. Y.

Sept. 15-17—Grand Island, Nebr.
LEAGUE OF NEBRASKA MUNICIPALITIES. Annual Convention (Hotel Yancy). Exec. Sec.-Treas., C. E. Beal, 303 Continental Bldg., Lincoln, Nebr.

Sept. 15-17—Muskegon, Mich.
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Annual Meeting (Occidental Hotel). Sec., T. L. Vander Velde, State Department of Health, Lansing 4, Mich.

Sept. 16-18—Salt Lake City, Utah
UTAH MUNICIPAL LEAGUE. Annual Convention (Newhouse Hotel). Exec. Dir., Tom McCoy, Newhouse Hotel, Salt Lake City, Utah.

Sept. 19-21—Roanoke, Va.
LEAGUE OF VIRGINIA MUNICIPALITIES. Annual Convention (Hotel Roanoke). Exec. Sec., Harold I. Baumes, 905 Travelers Bldg., Richmond 19, Va.

Sept. 19-22—Atlantic City, N. J.
AMERICAN PUBLIC WORKS ASSOCIATION. Public Works Congress and Equipment Show (Hotel Claridge, Municipal Auditorium). Exec. Sec., D. F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

Sept. 19-25—Edinburgh, Scotland
INTERNATIONAL CONGRESS FOR HOUSING AND TOWN PLANNING. Headquarters, International Federation for Housing and Town Planning, Paleistraat 5, The Hague, Netherlands.

Sept. 20-21—Kansas City, Kans.
LEAGUE OF KANSAS MUNICIPALITIES. Annual Meeting (Town House Hotel). Exec. Dir., John G. Stutz, 512 Capitol Federal Bldg., Topeka, Kans.

Sept. 20-22—Nashville, Tenn.
AMERICAN WATER WORKS ASSOCIATION—Kentucky–Tennessee Section. Annual Meeting (Andrew Jackson Hotel). Sec.-Treas., J. Wiley Finney, Jr., 420 Sixth Ave. N., Nashville, Tenn.

Sept. 21-23—Cumberland Falls State Park, Ky.
KENTUCKY MUNICIPAL LEAGUE. Annual Meeting (DuPont Lodge). Exec. Sec., Carl B. Wachs, McVey Hall, University of Kentucky, Lexington, Ky.

Sept. 21-23—Dayton, Ohio
AMERICAN WATER WORKS ASSOCIATION—Ohio Section. Annual Meeting (Hotel Biltmore). Sec.-Treas., M. E. Druley, 68 N. South St., Wilmington, Ohio.

Sept. 22-24—Atlanta, Ga.
GEORGIA WATER AND SEWAGE OPERATORS' SCHOOL. (Georgia Institute of Technology). Sec.-Treas., A. T. Storey, Georgia Water and Sewage Association, 1210 Hemphille Ave. NW., Atlanta, Ga.

Sept. 22-24—Detroit, Mich.
MICHIGAN MUNICIPAL LEAGUE. Annual Meeting (Statler Hotel). Exec. Dir., John H. Huss, 205 S. State St., Ann Arbor, Mich.

Sept. 23-24—Milwaukee, Wis.
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Meeting (Hotel Schroeder). Exec. Sec., Frederick N. McMillin, 30 E. Johnson St., Madison 3, Wis.

Sept. 23-25—Oklahoma City, Okla.
OKLAHOMA MUNICIPAL LEAGUE. Annual Meeting (Hotel Huckins). Exec. Dir., Daniel Fudge, P. O. Box 1214, Oklahoma City, Okla.

Sept. 26-28—Jefferson City, Mo.
MISSOURI WATER AND SEWAGE CONFERENCE. Annual Meeting (Governor Hotel). Sec.-Treas., W. A. Kramer, State Office Bldg., Jefferson City, Mo.

Sept. 26-28—Jefferson City, Mo.
AMERICAN WATER WORKS ASSOCIATION—Missouri Section. Annual Meeting (Hotel Governor). Sec.-Treas., W. A. Kramer, State Office Bldg., Jefferson City, Mo.

Sept. 26-29—Cincinnati, Ohio
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Meeting (Netherland Plaza Hotel). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

Sept. 26-30—New Orleans, La.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Roosevelt Hotel). Exec. Sec., Edward J. Kelly, 1424 K St. NW., Washington 5, D. C.

Sept. 26-30—Philadelphia, Pa.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Meeting (Benjamin Franklin Hotel). Exec. Dir., Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

Sept. 27-30—Kansas City, Mo.
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Muehlebach Hotel). Exec. Sec., M. Mansfield Todd, Strathcona Hall, New Haven 11, Conn.

Annual Conference of U. S. Conference of Mayors Postponed

DUE to the fact that there is to be convened the Second White House Conference of City Officials in December, the Annual Conference of The United States Conference of Mayors will be held next spring. A primary consideration in this decision is a desire not to impose unduly on the time of busy city officials by a schedule which would require absence from their cities at frequent intervals. The exact date will be announced shortly so that all officials may make plans for participation in what undoubtedly will be the most important session in the history of the Conference.

Sept. 27-30—Pittsburgh, Pa.
AMERICAN TRANSIT ASSOCIATION. Annual Meeting (William Penn Hotel). Gen. Sec., Arthur W. Baker, 292 Madison Ave., New York 17, N. Y.

Sept. 27-Oct. 1—Bretton Woods, N. H.
NATIONAL TAX ASSOCIATION. Annual Meeting (Mount Washington Hotel). Exec. Sec., Ronald B. Welch, NTA, P. O. Box 1799, Sacramento 8, Calif.

Sept. 27-Oct. 1—St. Louis, Mo.
NATIONAL RECREATION CONGRESS. Annual Meeting (Jefferson Hotel). Sec., T. E. Rivers, 315 4th Ave., New York 16, N. Y.

Sept. 28-30—Green Bay, Wis.
AMERICAN WATER WORKS ASSOCIATION—Wisconsin Section. Annual Meeting (Northland Hotel). Sec., Leon A. Smith, City Hall, Madison, Wis.

Sept. 28-30—Mitchell, S. D.
SOUTH DAKOTA WATER AND SEWAGE WORKS. Annual Meeting (Lawler Hotel). Exec. Sec., Charles E. Carl, Director, Division of Sanitary Engineering, State Department of Health, Pierre, S. D.

Sept. 28-30—Nashville, Tenn.
SOUTHEASTERN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Meeting (Hotel Andrew Jackson). Sec.-Treas., Berrien W. Davis, State Highway and Public Works Commission, Raleigh, N. C.

Sept. 29-Oct. 1—Columbus, Ohio
OHIO MUNICIPAL LEAGUE. Annual Meeting. Exec. Dir., Allen E. Pritchard, Jr., 55 E. State St., Columbus, Ohio.

Oct. 3-5—Lake Placid, N. Y.
COUNTY OFFICERS ASSOCIATION OF THE STATE OF NEW YORK. Annual Meeting (Lake Placid Club). Exec. Sec., Donald C. Scribner, County Bldg., Johnstown, N. Y.

Oct. 3-8—Baltimore, Md.
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Conference (Hotel Lord Baltimore). Exec. Sec., Alfred B. LaGasse, 143 S. Lincoln, Aurora, Ill.

Oct. 4-5—Atlantic City, N. J.
PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOCIATION. Annual Conference (Haddon Hall). Sec.-Treas., Claude C. Fogelman, 1717 Main St., Northampton, Pa.

***Oct. 4-5—Moncton, N. B.**
AMERICAN WATER WORKS ASSOCIATION—Maritime Branch, Canadian Section. Annual Meeting (Hotel Brunswick). Sec., J. D. Kline, P. O. Box 574, Halifax, Nova Scotia.

Oct. 4-6—Poland Spring, Maine
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Poland Spring House). Sec., Joseph C. Knox, 75 Tremont St., Boston 8, Mass.

Oct. 4-7—Atlantic City, N. J.
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Meeting (Ambassador Hotel). Sec., Irvin Shulsinger, 130 W. 42nd St., New York 36, N. Y.

Oct. 6-7—Jefferson City, Mo.
MISSOURI MUNICIPAL LEAGUE. Annual Meeting (Governor Hotel). Exec. Dir., Bruce J. Carl, 212-214 Guitar Bldg., Columbia, Mo.

***Oct. 6—New York, N. Y.**
REGIONAL PLAN ASSOCIATION. 25th Anniversary Regional Plan Conference (Hotel Roosevelt). Address inquiries to Conference Secretary, Regional Plan Association, 205 E. 42nd St., New York 17, N. Y.

(*Continued on page* 197)

THOUSANDS OF ALLIS-CHALMERS MODEL D MOTOR GRADERS NOW IN USE

FINISHES BETWEEN FORMS, cleans up, loads trucks, backfills, landscapes . . . at low cost.

Five Years in the Field Prove Big-Grader Performance at One-Third the Cost

From its introduction in 1949, the Allis-Chalmers Model D established itself as a real pacemaker in the motor grader field. It was the first low-cost machine to offer tandem drive, single member tubular frame and the famous ROLL-AWAY moldboard. The "D" has proved again and again that it does outstanding work on both construction and maintenance.

Several easily mounted attachments make it invaluable all year 'round: hydraulically controlled, rear-end loader; shoulder maintainer that is interchangeable with loader bucket; hydraulically controlled scarifier; both blade and V-type snowplows.

Allis-Chalmers has now added even more to the Model D's workability. It offers a new 50 brake horsepower, "POWER-CRATER" engine; leaning front wheels** and power circle turn**. Yet the Model D's original cost is still only one-third that of a large grader, and operating, service and replacement part costs are proportionately low.

We invite you to talk with your nearby Allis-Chalmers dealer . . . compare values . . . and then ask for a demonstration.

**Optional equipment ROLL-AWAY and POWER-CRATER are Allis-Chalmers trademarks.

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(*Advertisement*)

LETTERS from communities —

Sirs:

We have been entirely satisfied with the Model D. It has proved to be a year 'round piece of equipment. We use it in the summer for grading and ditching and in the winter for plowing and it does both jobs well. Maintenance has been very moderate and your service excellent.

L. W. O'CONNOR
Town Manager
Bucksport, Maine

Sirs:

I have operated heavy equipment of all kinds, makes and models for 22 years. I find that with this machine (the Model D) there is no job too large or too small. I clean streets, take dirt off streets, cut a 32-inch ditch for gas, water and sewer lines and backfill, break out asphalt, work base, spread asphalt, maintain all city streets, and build streets for new suburbs. With the rear-end loader I use it for laying 6-inch water lines, clean out sod on city streets, load base material, use it as a dozer blade, and dig and clean out drain ditches at sewer plant.

This machine has finger-tip control and very good visibility . . . it is very easy to do precision work. I highly recommend this machine for high performance and very low maintenance.

CURTIS M. SOLLOCK
Superintendent of Streets, Water Works,
Gas & Sewage of the City of Devine, Texas

Sirs:

I have used our D Motor Grader two years. In that length of time I have found it to be very economical and efficient. We never use over a gallon of gasoline per hour on our hardest work. We have built several blocks of streets, sloped banks, cut ditches, and scarified black-top streets and reshaped them. We are going to reshape and refinish about twelve blocks of streets this year. We will use the D for scarifying and oil mixing. In fact, we don't expect to use any other machine on this job.

This machine is an operator's dream. We use our D and TLD Loader for snow removal. The city is very pleased with this machine's performance and economy. I, as the superintendent of streets, think it can't be beat.

GEORGE D. FRENCH
Superintendent of Streets
City of Lamoni, Iowa

Sirs:

Just a few lines to let you know some facts about the two Model D's Pike County purchased a few years ago. They enabled us to divide our mileage in such a way that each machine could make its route once a week instead of once every two weeks as had been the case in the past. The two Model D's were given a route of 30 miles each which they make in 4½ days. As a result we were able to maintain every road we have in the County once a week, therefore, all roads are kept in better condition.

I am firmly convinced that Pike County has profited by the purchase of these machines as the roads are in better condition due mainly to regular routine maintenance.

DALLAS STRUBINGER
County Superintendent of Highways
Pike County, Pittsfield, Illinois

Sirs:

We find our Model D very economical considering the work it performs. Especially like the ROLL-AWAY moldboard and operating ease. Have done a lot of grading, ditching, and snow removal, and find it very satisfactory for a town our size.

CLYDE WOOD
Road Supervisor
CHESTER R. JOHNSON
Water Supervisor
Holden, Utah

Municipal & Civic Publications

Activities of New York City Police Department

A SELF PORTRAIT—*July-August* 1954 *issue of* Spring 3100. *To obtain copy address request to Office of Community Relations, New York City Police Department, Room No.* 211, 240 *Centre St., New York* 13, *N. Y.* 60 *pp.*

Included in the illustrated "Self Portrait" issue of the New York City Police Department's official magazine are descriptive articles on the Patrol Force, Detective Division, Traffic Division, Communications and Records Division, Emergency Service Division, Policewomen's Bureau, etc. Special articles are also included on the various units of the Detective Division—such as the Safe and Loft Squad, the Narcotic Squad, the Police Laboratory, Bureau of Criminal Identification.

What Business Thinks of One-Way Streets

ONE WAY BUSINESS STREETS—*Transportation and Communication Department, Chamber of Commerce of the United States, Washington* 6, *D. C.* 1954. 16 *pp.* 25 *cents.*

Intended as a guide to businessmen and city officials who are considering the matter of instituting one-way movement on business streets, this booklet tells how businessmen regard one-way streets, how they affect retail sales and property values, where they have been abolished and why, how they affect motor-vehicle traffic, advantages and disadvantages, trial periods, steps to be taken in establishing a one-way plan, etc.

The Councilman's Job

YOUR JOB AS COUNCILMAN—*By Clayton L. Ringgenberg. Institute of Public Affairs of the State University of Iowa in cooperation with the League of Iowa Municipalities, Iowa City, Iowa.* 1954. 74 *pp.* $1.

Although written primarily for councilmen in municipalities in Iowa, this booklet has information that will be of interest to council members in communities throughout the nation. Chapters include the following: Your Community Is Incorporated Under State Law; Your Council Directs a Service Agency; You Have an Important Part in the Development of Your Community; Management: The Council's Part in Getting Work Done; Handling the Financial Side of the City's Business; At the Council Table.

Investment of Pension Funds

A SURVEY OF PENSION FUND INVESTMENT PROBLEMS — *Municipal Finance Officers Association of the United States and Canada,* 1313 *E. 60th St., Chicago* 37, *Ill. Special Bulletin* 1954*D. June* 16, 1954. 75 *cents.*

Municipal and state officials charged with the responsibility of investing public pension funds will find this bulletin worth while reading. The rapid growth in the size of public pension funds is discussed. Data are then presented on what a pension fund officer is permitted to do legally. Finally there is an extensive discussion of types of investment opportunities with helpful bits of advice regarding the advantages of each.

Annexation *vs.* Incorporation

ANNEXATION? INCORPORATION?—A Guide for Community Action — *By Stanley Scott. Bureau of Public Administration, University of California, Berkeley* 4, *Calif. Second Edition, revised, March* 1954. 163 *pp.* $1.50.

While written with California communities in mind, much of the material in this guide is pertinent wherever these problems arise.

The volume is organized in three parts, with a series of appendices. Part I, Introduction and Initial Investigation, contains the following headings: To the Users of the Guide, Why Do Communities Study Annexation and Incorporation? How Can a Community Fact-Finding Survey Be Carried Out?, and Making a Start. Part II, which is headed Studying Annexation Problems, contains: Financial Aspects of Annexation, Non-Financial Aspects of Annexation, and Annexation Procedure. Part III is titled: Studying Incorporation Problems and contains: Financial Aspects of Incorporation, Non-Financial Aspects of Incorporation, Choosing a Name for the City, and Incorporation. The appendices consist largely of legal forms and documents used for annexation or incorporation procedures in California.

Recreation and Parks in Metropolitan Los Angeles

METROPOLITAN LOS ANGELES, A STUDY IN INTEGRATION: VOL. IX, RECREATION AND PARKS—*By Ellis McCune. The Haynes Foundation,* 916 *Consolidated Bldg.,* 607 *South Hill St., Los Angeles* 14, *Calif.* 1954. 73 *pp. Cloth bound,* $1.75; *paper bound,* $1.25.

This study surveys the administration of recreation and park services in the Los Angeles County area through discussions of the Los Angeles County Department of Parks, the Los Angeles City Department of Recreation and Parks, and the department of parks and recreation in four of the larger cities within the county—Long Beach, Pasadena, Glendale, and Burbank. The organization and programming of the recreation services are treated in general terms, while emphasis is placed on the cooperative arrangements which the recreation departments have made with local agencies in efforts to develop more effective services.

Homes in Many Lands

THE NEW SMALL HOUSE—*Published in the United States by The British Book Centre, Inc.,* 122 *E. 55th St. By F. R. S. Yorke and Penelope Whiting, New York* 22, *N. Y.* 1954. 144 *pp.* $5.50.

Showing a collection of interesting small houses that have been built in various countries since the war, this book proves that it is still possible to build an inexpensive house that has charm and practicality. Pictures, floor plans, text, describing construction, and drawings of neighborhood layouts form the main part of the book. Examples of the 65 new houses, ranging in cost from about £1,100 to £4,000 illustrate how much thought now goes into producing an efficient plan within compact space and at a low cost. It is interesting to compare trends in architectural and street design in various countries.

Community Industrial Development

FINDING PROSPECTS FOR COMMUNITY INDUSTRIAL DEVELOPMENT — *Department of Manufacture, Chamber of Commerce of the United States, Washington* 6, *D. C.* 1954. 28 *pp.*

Finding good prospects is a difficult yet essential job facing community industrial promotion leaders. It is, therefore, important that they know the best methods to do intelligent and effective sales work. This pamphlet outlines some ways that have proved successful and touches on many possible methods of discovering potential prospects. The appendices contain source and information lists, as well as lists of economic and industrial development agencies and employment security agencies.

Economic Effects of Industry on a Community

WHAT NEW INDUSTRIAL JOBS MEAN TO A COMMUNITY — *Economic Research Department, Chamber of Commerce of the United States, Washington* 6, *D. C.* 1954. 12 *pp. Single copies free.*

This research study shows the economic impact of new manufacturing plants upon nine recently industrialized counties; how they affected nonmanufacturing employment, retail sales, bank deposits, school enrollment, and other economic measures. It does not attempt, however, to estimate the effect of industrial expansion on governmental costs and local taxes.

Sites for New Industrial Plants

SPACE FOR INDUSTRY — *By Dorothy A. Muncy.* Technical Bulletin, *No.* 23, *of the Urban Land Institute,* 1737 *K St., NW., Washington* 6, *D. C. July* 1954. 40 *pp.* $5.

This Bulletin, based on an analysis of 220 new industrial plants, states that the right sort of new industry will be a good neighbor for even the highest type of residential community. The typical new plant is a one-story building with horizontal production lines, ample parking space for employees, off-street loading facilities, and a well-landscaped site which is a credit to the neighborhood. The Bulletin also points out that new industry can add substantially to the tax base of the community, and new factories do not usually call for the large expansions in municipal services and utilities that new housing developments require. In the author's opinion, few communities are reserving enough land to meet future industrial requirements.

Technical Assistance Methods

FIFTY YEARS OF TECHNICAL ASSISTANCE—*By Edwin A. Bock. Public Administration Clearing House,* 1313 *E. 60th St., Chicago* 37, *Ill.* 1954. 65 *pp.* $1.50.

More than 50 veteran technical-assistance administrators and field workers in such fields as health, education, agriculture, social work, and community development have contributed experience and wisdom to this summary of principles and methods of program administration and project operation, telling of pitfalls to be avoided, how to avoid alienating people one is trying to help, etc.

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Banox banishes the threat of salt-slush corrosion from streets and highways. As little as 1% Banox added to de-icing salt puts a stop to salt-slush corrosion damage and makes for substantial savings for motorists and taxpayers.

Salt is more economical,* and faster and safer than old fashioned snow and ice control with abrasives. Banox halts salt-slush corrosion damage to cars, municipal equipment, bridges and other metal surfaces, and in addition, with a salt-Banox mix, there is no costly spring clean up of gutters and catch basins.

Application of Banox is easy and inexpensive. It can be added to de-icing salt by road maintenance crews, needs no special mixing and is evenly distributed by normal traffic movement.

Join the many communities who have already discovered the efficiency and economy of using Banox and salt for snow and ice control without salt-slush corrosion. Send for your free booklet: "Stop, Look and Save with Banox."

*Comparative cost figures for both city streets and highways indicate that you can save as much as $4.27 per mile by using rock salt instead of abrasives.

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How to Determine the Boundary of a Central Business District

DELIMITING THE CENTRAL BUSINESS DISTRICT —*By Raymond E. Murphy and J. E. Vance, Jr. In July* 1954 *issue of* Economic Geography, *published quarterly by Clark University, Worcester* 10, *Mass.*

The central business district has become the subject of countless studies in recent years, due to the rise of traffic and parking problems created by shoppers and workers crowding into our limited downtown areas. Further studies have resulted from the trend toward commercial centers in suburban areas. Up to now, however, there has been no standard way of delimiting a central business district. Techniques varied from city to city making it difficult to compare studies of the same problem in different localities.

Doctors Murphy and Vance have now proposed a standard procedure which is explained in detail in this article. The technique involves the use of data concerning the floor areas occupied by commercial uses in buildings in the downtown areas of cities. Business intensity and business height indices are set up for blocks in and near the central area with an index of 50% or more determining whether the block will be included in the Central Business District.

Master Plan for Canadian Town

LIVING AND WORKING IN WEST VANCOUVER, BRITISH COLUMBIA—*By H. Peter Oberlander and Ira M. Robinson. Published by the Corporation of the Municipal District of West Vancouver, Municipal Hall, West Vancouver, British Columbia.* 1954. 42 *pp.* $2.

This report which is subtitled, "An Economic Analysis as a Basis for Community Planning," presents a careful study of the existing conditions in this British Columbian town of 15,000, a look at the probable future conditions and certain recommendations for meeting the problems that are now and will be facing the community. Rapid growth and municipal financial problems are discussed in detail. The relationship between the municipality's economic base and its municipal finances and land-use pattern is analyzed. Three possible policies for maintaining and improving the position of West Vancouver in the face of the present and future problems are presented. Finally, the means of putting these policies into action are explained in detail.

In-Service Training for Future Recreation Department Leaders

IN-SERVICE TRAINING FOR PARKS AND RECREATION — OBJECTIVES AND RESOURCES — *American Institute of Park Executives,* 30 *N. LaSalle St., Chicago, Ill., and National Recreation Association,* 315 *4th Ave., New York, N. Y. December* 1953. 29 *pp.* 50 *cents.*

If your park or recreation department is thinking of setting up an in-service training program to develop future department leaders from your present personnel, here is a good booklet to start off with. The presentation is in outline form and covers such material as training objectives, essential elements of an effective training program, fundamentals of good instruction, and recommendations. An excellent bibliography on the subject of in-service training is included. The booklet is the work of the in-service training committees of the two national organizations mentioned above.

Planning Commissioner's Role

THE LOCAL PLANNING COMMISSIONER — *By Harold V. Miller. In Tennessee City and Regional Planning* Newsletter. *June* 1954. *Tennessee State Planning Commission,* 517 *Commerce St., Nashville, Tenn.*

Harold Miller's article, which is a reprint of an address before the East Tennessee Regional Planning Conference, discusses the importance of the individual planning commissioner to the development of a well-rounded community. He also speaks of the various attributes that a good planning commissioner should have.

Interest and integrity head the list. He should also be a team-man and a good salesman, and as the latter should possess a sense of timing.

Street and Highway Conference Report

PROCEEDINGS OF THE SIXTH CALIFORNIA STREET AND HIGHWAY CONFERENCE—*University of California, Berkeley* 4, *Calif.* 1954. 159 *pp.* $2.

The 1954 Proceedings of the California Conference, presented annually by the Institute of Transportation and Traffic Engineering, contains 43 papers and panel discussions under six general headings: highway law, economics, planning and standardizing, urban transportation, traffic and safety; and engineering, construction, maintenance.

Included are papers by Wilfred Owen, The Brookings Institution; Light B. Yost of the White House Conference on Highway Safety; J. O. Mattson, President of the Automotive Safety Foundation, and C. M. Nelson, Editor of *Better Roads.*

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Municipal Employees' News Letter

"YOU NAME IT" — Vol. I, No. 1 — *Sally Richardson, Editor. Published by and for the employees of the City of Richmond, Va. July,* 1954. 4 *pp.*

This new and well-edited municipal employees' publication is launched with the announcement of a contest to choose its name. The little paper promises to keep Richmond's employees informed on local government affairs and to reflect their ideas and suggestions. Each department of the city government has at least one reporter to whom staff members are urged to bring news and ideas.

Design Standards for Housing for Elderly Persons

STANDARDS OF DESIGN — HOUSING FOR THE ELDERLY—*Massachusetts State Housing Board, Boston, Mass. March* 1954. 17 *pp.*

This short and excellently written booklet, prepared under the direction of the Housing Association of Metropolitan Boston, presents standards of design to aid planners and architects concerned with the design of housing for low-income elderly people in Massachusetts. The Standards are the work of Robert Woods Kennedy, a Boston architect of admirable sensitivity to the needs of older people, who has filled his text with many practical design suggestions.

Despite its orientation toward a Massachusetts housing program, the booklet will be helpful to any architect or planner, regardless of location, who may be faced with the problem of designing housing for the exclusive use of persons past their prime of life. Here is an example of the kinds of points made by Mr. Kennedy in this book of standards: "Bed making becomes increasingly difficult with age. The elderly are sometimes not strong enough to move their beds, or indeed to do much more than straighten them out. Beds must have open circulation of at least eighteen inches on each side and at the foot. This space is also required for those tables which straddle the bed, used temporarily in case of illness."

The Real Estate Market in Cities

URBAN REAL ESTATE—*By Ernest M. Fisher and Robert Moore Fisher. Henry Holt and Company, Inc.,* 383 *Madison Ave., New York* 17, *N. Y.* 1954. 502 *pp.* $6.50.

This comprehensive survey probes beyond surface explanations in describing the mechanics of the real estate market and the factors that influence it. Two of the most interesting chapters are "The Rate of Utilization," which shows how cycles in the real estate market are generated by changes in the rate and degree of property use; and "Markets for Residential, Commercial and Office Space and Real Estate Investments," which illustrates the operation of the law of supply and demand in connection with these uses. These two chapters plus the chapters titled, "The Economic Base of a Community," "Patterns of Land Use," "Changes in Patterns of Land Use," and "The Influence of Public Policies" should be of particular interest to builders and public officials concerned with planning, zoning, urban redevelopment, and public housing.

In keeping with the comprehensive nature of the volume, the book begins with a definition of real estate, and proceeds to discuss such topics as property rights, titles, means of transferring real estate, real estate finance, and appraisal.

Highlights of 1954 National Health Council Forum

STAFFING AMERICA'S HEALTH SERVICES — *National Health Council,* 1790 *Broadway, New York* 19, *N. Y.* 111 *mimeo. pp.* 75 *cents.*

The 34th Annual Meeting of the National Health Council, held in March 1954, is summarized in this report. The problems of personnel, on which the meeting was focused, are discussed from the viewpoints of the changing American scene, public expectations, new patterns of living, changing governmental health programs, the expanding rehabilitation concept, new factors in education and training, what existing organizations are doing to meet health personnel needs, and highlights on the future.

Directory of Highway Officials and Engineers

HIGHWAY OFFICIALS AND ENGINEERS—*Published by American Road Builders' Association, World Center Bldg., Washington* 6, *D. C.* 1954. 94 *pp.* $1.

This latest addition of the annual directory contains more than 1,500 names, titles, and addresses of administrative engineers and officials in the 48 state highway departments and in the District of Columbia; lists administrative personnel of the Bureau of Public Roads, Toll Road Authorities, and ARBA. The booklet also features a tabulation of states showing highway funds expended during 1953 as well as an estimate of expenditures for 1954, and a tabulation of states having legislative authority to construct toll roads.

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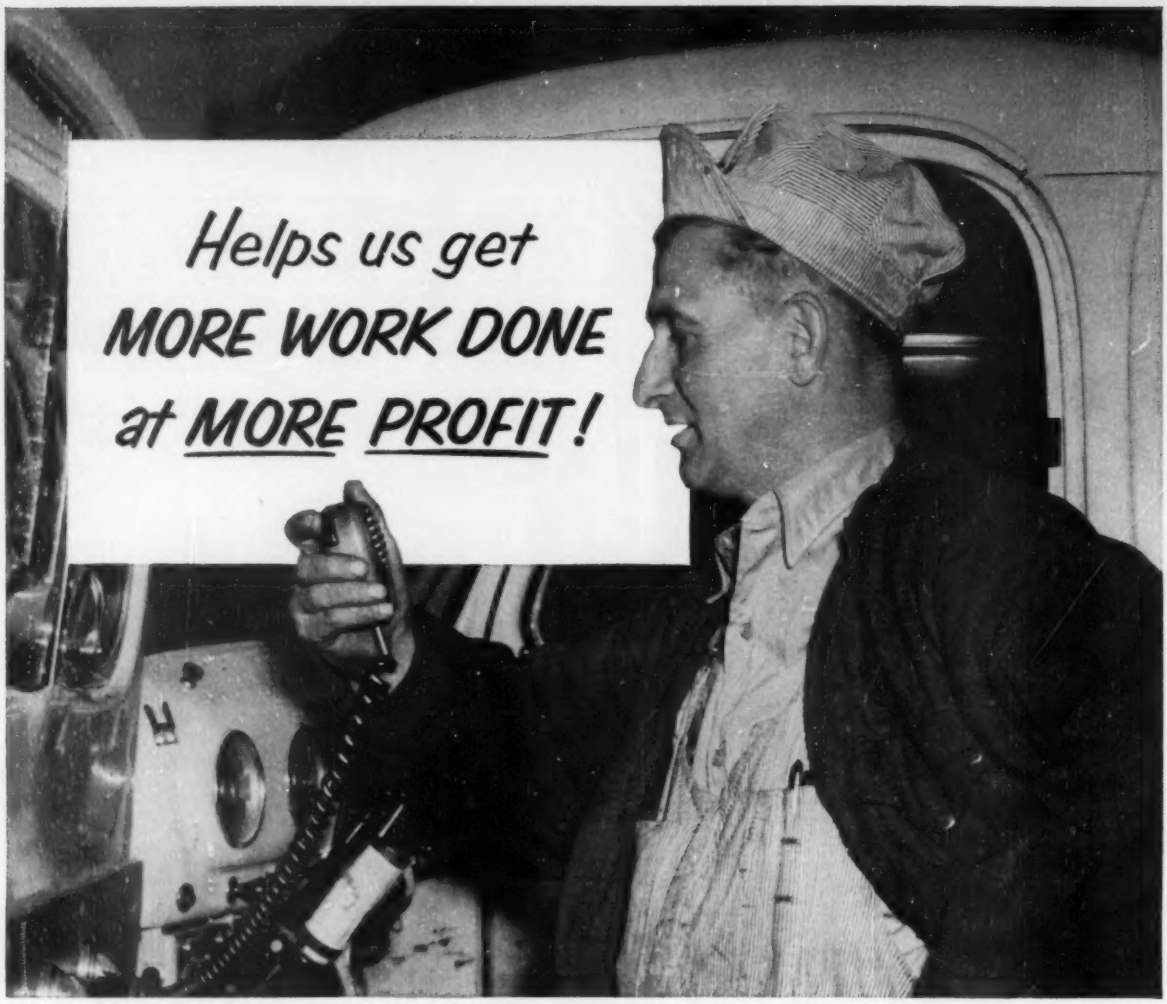

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Other Reports Received

Administration and Government

KANSAS—Township Government in Kansas. By James W. Drury. University of Kansas Publications, Lawrence, Kans. Governmental Research Series No. 10. Maps. Tables. 66 pp.

MODESTA, CALIF.—Report to the People. A Twelve Minute Summary of Your City's Year, "A Minute a Month." March 1954. Obtainable from Office of the Mayor, 817 Tenth St., Modesto, Calif. Illus. Unpaged.

WALLA WALLA, WASH.—A Series of Non-Partisan Reports on the City Charter Question which appeared in the Walla Walla *Union-Bulletin* prior to the Municipal Election for the Selection of 15 Freeholders, June 1, 1954. 18 pp.

WISCONSIN—How Should a Board of Review Function? League of Wisconsin Municipalities, 30 E. Johnson St., Madison 3, Wis. June 1954. 14 pp.

GENERAL—Reorganization of Local Government. Report of the Association of Municipal Corporations, Victoria Station House, London, S.W. I. April 1954. 7 pp.

Annual Reports

BERKLEY, MICH.—A Report to Our Citizens, 1953. Available from Office of City Manager, Donald M. Oakes, City Hall, Berkley, Mich. 15 pp. Illus.

GREENWICH, CONN.—Annual Report. 1953. Published by the Board of Estimate and Taxation, Greenwich, Conn. April 20, 1954. Tables. Map. 366 pp.

LEWISTON, MAINE—Annual Report for the Year Ending March 31, 1953. Edited by Lucien Lebel, City Clerk. Illus. Tables. 63 pp.

Citizens and Government

ALLEN COUNTY, IND.—A Combined Report of Operations 1953-54. The Citizens' Civic Association, Inc., and Citizens' Council, Indianapolis, Ind. Illus. 16 pp.

GENERAL—Choosing the President of the USA. Publication No. 7. Published by Carrie Chapman Catt Memorial Fund, Inc., 461 Fourth Avenue, Room 810, New York 16, N. Y. 43 pp. 25 cents.

Education

BOULDER, COLO.—Boulder Public Schools. Past, Present, and Future. Boulder County School District No. 3. Maps. Graphs. Tables. 60 pp.

Finance and Taxation

ATLANTA, GA.—1953 Annual Report of City Comptroller. Tables. 118 pp.

CATASAUQUA, PA.—Summary of Auditors' Report and Financial Statement for the Year Ending December 31, 1953. Borough of Catasauqua, 118 Church St., Catasauqua, Pa. Unpaged.

COLUMBIA, S. C.—1954-1955 Budget. Annual Budget of the City of Columbia for the Fiscal Year July 1, 1954, to June 30, 1955, and Supporting Detail. Prepared by the City Manager, and

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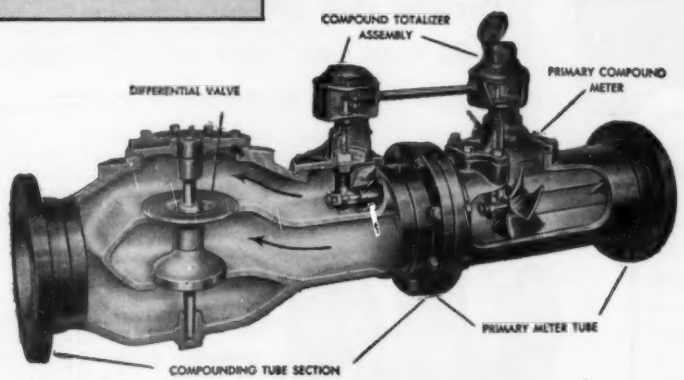

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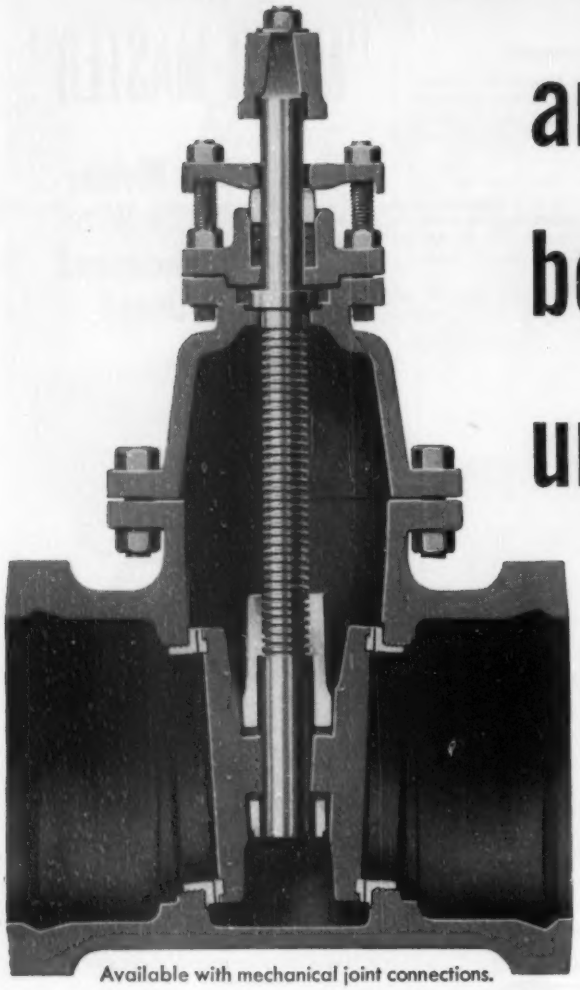

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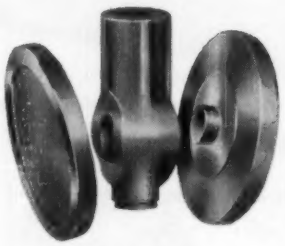

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submitted to the City Council June 18, 1954. Graphs. Maps. Tables. 94 pp.

LOUISVILLE, KY. — Annual Report of the Director of Finance, 1952-1953. 79 pp. Tables.

MARYLAND — Local Government Finances in Maryland, 1952-1953. Fifth Report to the Governor and the General Assembly of Maryland by the State Fiscal Research Bureau, 34 Hopkins Pl., Baltimore 1, Md. Tables. 78 pp.

MONTREAL, CANADA — Financial Statement and Assessments. The Montreal Metropolitan Commission, Ephrem Brisebois, Sec.-Treas., Marquette 4118, 10 Quest Rue St. Jacques, Montreal. 16 pp. French and English.

OHIO—Budgeting Procedures for Ohio Municipalities. Report No. 5. July 1954. Prepared by J. E. Gotherman, Director of Research, Ohio Municipal League, 85 S. Grant Ave., Columbus 15, Ohio. 24 pp. $2.

SPRINGFIELD, MASS.—The Springfield Economic Area — A Community Inventory. Prepared by Future Springfield, Inc., Bureau of Research in Municipal Government. June 1954. 26 pp. $1.

UNIVERSITY CITY, MO. — Annual Budget, 1954-1955, and Supporting Detail. Available from Office of City Manager, Elder Gunter, 5801 Delmar Blvd., University City 5, Mo. Graphs. Tables. 101 pp.

VIRGINIA—Salaries of Municipal Officials in Various Virginia Cities. Available from League of Virginia Municipalities, 904 Travelers Bldg., Richmond 19, Va. Report No. 363. June 1954. 6 pp. $1. $1.25, foreign countries. Distribution free to Virginia Municipal Officials.

——Salaries of Municipal Officials in Various Virginia Towns. Report No. 364. July 1954. 12 pp.

YUBA CITY, CALIF. — Budget, 1954-1955. Submitted by M. W. Slankard, Chief Administrator. Tables. 68 pp.

Laws and Legal Decisions

GENERAL—NIMLO Model Ordinance Regulating Parades. Unpaged.

——NIMLO Model Building Moving Ordinance. Unpaged. Both available from National Institute of Municipal Laws Officers, 730 Jackson Pl. NW., Washington, D. C.

Personnel

ARCADE, N. Y.—You and Your Job. Manual may be secured from L. F. Sharon, Superintendent of Public Works. 17 Church St. 17 pp. $1.

GENERAL—City Employment in 1953. For Sale by the Bureau of the Census, Washington 25, D. C. Tables. Graphs. 28 pp. 20 cents.

Planning, Housing, and Zoning

BALTIMORE CITY, MD. — A Study of The Attitudes of Potential Applicants Toward Public Housing. Housing Authority, Research and Statistics Division. January 1954. Tables. 59 pp.

BURLINGTON COUNTY, N. J.—Industrial Site Selection. A case study of Existing and Potential Industrial Location. By Gerald Breese, The Bureau of Urban Research, Princeton University, Princeton, N. J. Tables. Maps. 115 pp. $2.

CHICAGO, ILL.—Neighborhood Conservation January 1-March 31, 1954. Housing and Redevelopment Coordinator, 69 W. Washington St., Room 1610, Chicago 2, Ill. Tables. Mimeo.

CORPUS CHRISTI, TEXAS—Comprehensive Plan for the Corpus Christi Area. Prepared for Area Development Committee of the Chamber of Commerce by Harland Bartholomew and Associates, City Planners, Saint Louis, Mo. Illus. Maps. Tables. 90 pp. $4.

CUYAHOGA COUNTY, OHIO — Our Citified County. A Study of Cuyahoga County and Its Land Use Now, and for the Future. Prepared by the Regional Planning Commission, 415 The Arcade, Cleveland, Ohio. Tables. Map. 29 pp.

MONTGOMERY COUNTY, PA.—People Are Talking. Published by Upper Montgomery County Planning Commission. Available from Thomas C. Kelley, Chairman, Darnestown, Pa. 25 pp.

MILWAUKEE, WIS.—Bridges to the Future. A Capital Improvement Program for the City, 1954 through 1959. Part I a review of the present and recommended programs. May 1954. Capital Improvements Committee, Room 206, City Hall, Milwaukee 2, Wis. Illus. Maps. 60 pp.

PERTH AMBOY, N. J. — Redevelopment Agency. Annual Report May 1954. Housing Authority of the Redevelopment Agency, 313 State St., Perth Amboy, N. J. Illus. Unpaged.

PHILADELPHIA, PA.—City Planning Report for 1953. Published by the City Planning Commission, Market Street National Bank Bldg., Market and Juniper Sts., Philadelphia 7, Pa.

(*Continued on page* 209)

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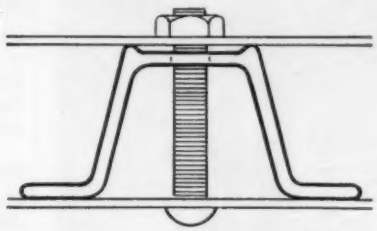

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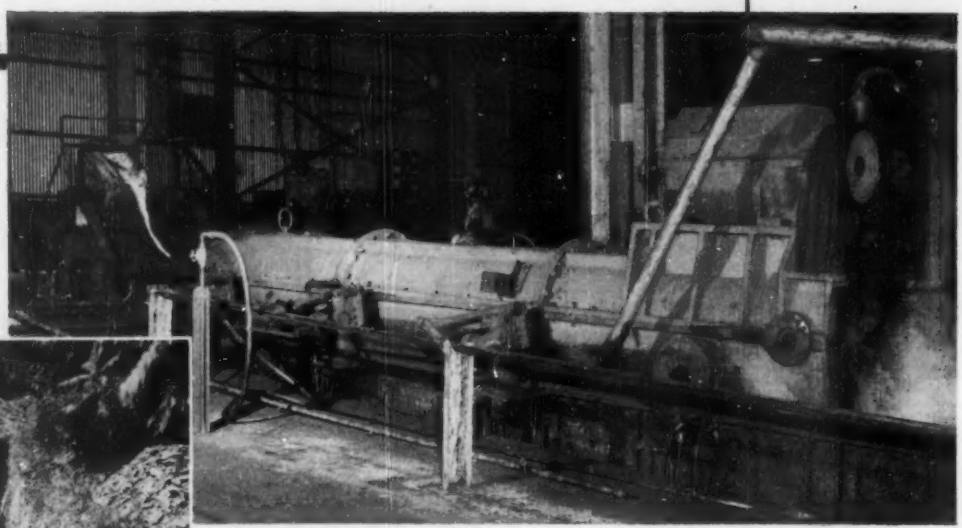

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(*Continued from page 139*)

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Public		*Per Year*
per hydrant		$25.00
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hose-inch connection		
1¼		$ 1.10
1½		1.40
2		1.70
2¼		2.00
per fire hydrant		3.75
automatic sprinklers		
inch-connection	square feet floor space	
2	5,000	2.00
4	10,000	3.50
6	20,000	5.25
	additional, per 1,000	.25

General Data

Population served	1,300
Services (99% metered)	3,491
Hydrants	274
Valves	208
Miles of mains	29
Supply—wells	
Treatment—chlorination	
Storage facilities—283,000 gallons in standpipe	
566,000 gallons in open reservoir	
155,000 gallons in covered reservoir	
Average demand	0.9 mgd
Plant capacity	2.5 mgd

Typical Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.80
5,000	667	2.66
10,000	1,533	4.68

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1. Water company owns all meters; places 65% in a meter box at lot line; balance in the building occupied by water user.
2. Bills are prepared in the central office at Massillon, Ohio.
3. Company provides water free for city building and park.
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Manager, Ohio Water Service Company

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Contrasts effects of rainfall on well- and poorly managed land. Uses cartoon technique in demonstrating that folks on earth, for their own good, should play fair with raindrops.

Ground Water

11 min. $1.75.

How ground water changes the earth's crust and forms artesian wells, springs, water tables, caves, geysers, sink holes, geodes, and natural bridges.

Purifying Water

15 min. Silent. $1.25.

How water from Lake Michigan is purified to provide a safe water supply for Chicago.

Water Cycle

11 min. $1.75.

The continuous circulation of water from the earth to the air masses and back to earth again. Evaporation, condensation, precipitation, runoff, storage, and water table.

What Makes Rain?

10 min. $1.75.

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WITH EXCLUSIVE ATTACHMENT $129.50
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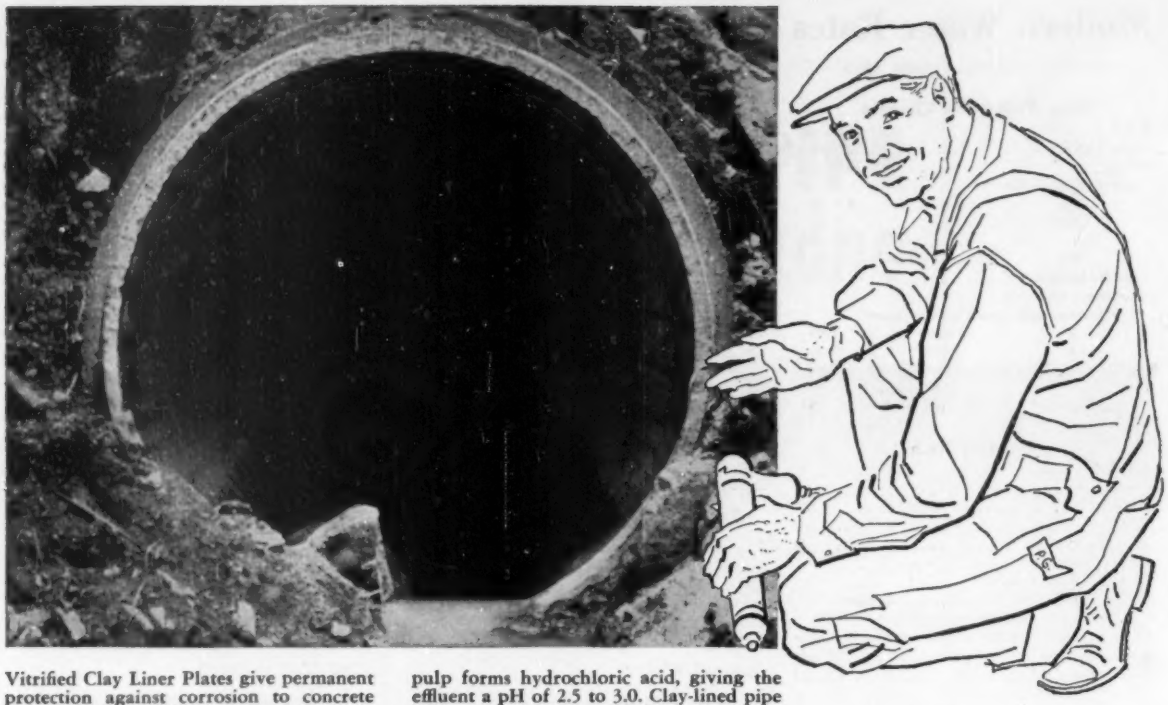
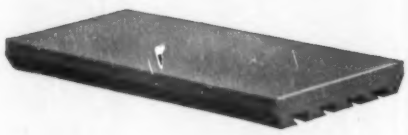


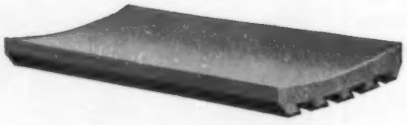
Vitrified Clay Liner Plates give permanent protection against corrosion to concrete discharge lines leading from an Alabama paper mill. Chlorine used to bleach wood pulp forms hydrochloric acid, giving the effluent a pH of 2.5 to 3.0. Clay-lined pipe replaces a severely corroded line that failed despite a "protective" coating.

VITRIFIED CLAY LINER PLATES

protect concrete pipe from corrosion



Whether it's the acid waste of an industrial process . . . or the acid that forms from ordinary sewage . . . Vitrified Clay is *completely unaffected.* That's why engineers specify Clay Pipe for lines that must give permanent, corrosion-free service. Behind this overwhelming preference for Vitrified Clay lies the fact that it can't rust, corrode, flake off, or soften regardless of the chemical activity of sewage liquids and gases. That's why Vitrified Clay Pipe is *guaranteed for 50 years.* It never wears out!



NATIONAL CLAY PIPE MANUFACTURERS, INC.

1520 18th St. N.W., Washington 6, D. C.

206 Connally Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

Vitrified CLAY PIPE

NEVER WEARS OUT!

C-454-4

tion, condensation, and precipitation.

Man's Problem

Color. 19 min. $5.25.

Illustrates absolute dependence on adequate supply of clear, fresh water; points out failure of nature to deliver enough water for man's needs; describes Los Angeles' water problem and solution; discusses problems created by dams, deterioration of water holding capacity of watersheds, and pollution; analyzes increasingly serious water shortage and outlines steps that must be taken if water is to be available in the future for our increasing population and expanding industry.

Nature's Plan

Color. 14 min. $3.75.

Natural and time-lapse photography are combined with animation to explain the water cycle, nature's mechanism which provides all living things with life-giving water. Explains concept of natural storage and distribution of water—the role of watersheds and the agents in the watershed (vegetation, ponds, marshes, streams, beavers, etc.) that help hold back water under natural conditions.

Water We Drink

10 min. $1.75.

Designed to teach good water-drinking habits at the elementary level. Shows how water is essential to our bodies and why we should drink only clean, pure water. Also shows the method by which water is purified in order to protect health.

Water Works For Us

10 min. $1.75.

Shows the importance of water in our civilization and the many ways in which water works for us — from cooking to driving steamships. Explains the principle of water pressure and shows applications. Demonstrates the principle of steam pressure and suggests applications.

STREET MAINTENANCE

Our City Streets

11 min. $1.75.

Importance of streets, types of wear and abuse they are subjected to, and the work of many men and machines that clean and repair the streets.

REFUSE COLLECTION

Treasure in a Garbage Can

20 min. $3.25.

Documents how Los Angeles salvages and puts to good use refuse and discarded materials. Shows operation and sanitary conditions for handling garbage, tin cans, bottles, and other materials which can be salvaged. Shows how almost all refuse is put to good use.

PUBLIC RELATIONS

17 min. $2.50.

Value to be derived by all from effective public relations between business, labor, government, and people. Role of public relations personnel, examples of effective public relations.

Another film on water which should be of interest to the municipal engineer is sponsored by the Rockwell Manufacturing Company.

Made to Measure

16mm. Sound. Color. 30 min.

Illustrates the use and construction of the Rockwell water meter.

Available on loan from Rockwell Manufacturing Company, 401 N. Lexington Ave., Pittsburgh 8, Pa.

What's C. H.?

AMONG the cities listed in this month's report on water rates (page 139) is the City of Washington C. H.,

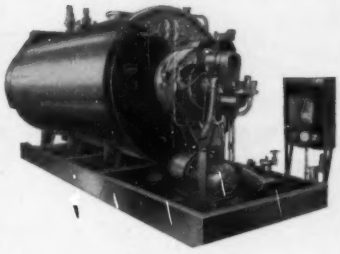
(*Continued on page* 203)

BRAXMAR BADGES

Standard Badges Since 1879

Write for catalog illustrating badges for Police, Fire and other City, County and State Officials
John O. Veit, Pres.

C. G. Braxmar Co., Inc.
216 E. 45th St., New York 17, N. Y.



"PACKAGED" STEAM BOILERS

Completely Equipped and Tested at factory.

Fully Automatic for Gas or Heavy Oil or Combination Oil and Gas.

60 to 600 Horsepower. High and Low pressure. A.S.M.E. Code and Nat'l Board.

Efficiency and Capacity guaranteed.

Underwriter's Laboratory and Factory Mutual approved.

Detailed Specification Forms, Catalog, and other Engineering Data gladly furnished.

JOHNSTON BROTHERS, INC.
FERRYSBURG, MICHIGAN
Established 1864

AMERICA'S HEADQUARTERS FOR
FIRE EQUIPMENT AND POLICE EQUIPMENT

WRITE FOR NEW CATALOGS

W.S. DARLEY & CO.
ESTABLISHED 1908
CHICAGO 12, ILLINOIS

DELIVERS WATER CHEAPER!

Colorado Springs installs high-pressure, 30-inch line in rugged mountain terrain with minimum of heavy equipment.

High-pressure steel pipe—50,000-lb. yield—was used in this line carrying water from the South Platte River to Catamount Reservoir near Divide, Colorado.

Portions of this force main were designed to operate at pressures up to 800-lb. psi. A Dresser-Coupled steel line offered engineers positive assurance of permanently tight joints.

Fast construction schedules were made and *kept* because Dresser Couplings went together quickly and easily regardless of weather or trench conditions. Laying costs were reduced by the ability of small crews to handle and join lighter weight steel pipe with a minimum of skill and heavy equipment. The absence of heat in joining prevents damage to the coal tar enamel pipe coating and lining. Glass-smooth linings assure sustained high flow-coefficients.

The result—another line that delivers, and will keep delivering water cheaper.

BE SURE **you get the *best* line at the *best* price. Always put steel pipe and Dresser Couplings in *your* specifications.**

DRESSER COUPLINGS

Dresser Manufacturing Division, 69 Fisher Ave., Bradford, Pa. (One of the Dresser Industries). Warehouses: 1121 Rothwell St., Houston, Texas; 101 S. Bayshore Highway, South San Francisco, California. Sales Offices: New York, Philadelphia, Chicago, Houston, South San Francisco. In Canada: Toronto, Ont.

Conventions—When and Where

(*Continued from page* 181)

Oct. 6-8—St. Paul, Minn.
AMERICAN WATER WORKS ASSOCIATION—Minnesota Section. Annual Meeting (Hotel Lowry). Sec., Leonard N. Thompson, 216 Court House, St. Paul. Minn.

Oct. 7-8—Des Moines, Iowa
LEAGUE OF IOWA MUNICIPALITIES. Annual Meeting (Hotel Fort Des Moines). Exec. Sec., Max A. Conrad, 303 Tampa Bldg., Burlington, Iowa.

Oct. 10-12—Springfield, Ill.
ILLINOIS MUNICIPAL LEAGUE. Annual Meeting (Leland Hotel). Exec. Dir., A. L. Sargent, 537 S. Fourth St., Springfield, Ill.

Oct. 10-13—New York, N. Y.
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Ninth Annual Conference and Products Exhibit (Hotel Statler). Exec. Dir., Albert H. Hall, 1001 Connecticut Ave. NW., Washington 6, D. C.

Oct. 11-14—Cincinnati, Ohio
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Netherland-Plaza Hotel). Exec. Sec.-Ed., W. H. Wisely, 325 Illinois Bldg., Champaign, Ill.

Oct. 11-14—Philadelphia, Pa.
NATIONAL ASSOCIATION OF HOUSING AND REDEVELOPMENT OFFICIALS. Annual Meeting (Bellevue-Stratford Hotel). Exec. Dir., John D. Lange, 1313 E. 60th St., Chicago 37, Ill.

Oct. 11-15—Buffalo, N. Y.
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting (Memorial Auditorium). Exec. Sec., Reginald M. Atwater, M.D., 1790 Broadway, New York 19, N. Y.

Oct. 12-15—Cincinnati, Ohio
OHIO SEWAGE AND INDUSTRIAL WASTES TREATMENT CONFERENCE. Annual Meeting in conjunction with the FEDERATION OF SEWAGE AND WASTES ASSOCIATION Meeting (Netherland-Plaza Hotel). Sec.-Treas., W. E. Conrad, Ohio Departments Bldg., Columbus 15, Ohio.

Oct. 13-15—Cedar Rapids, Iowa
AMERICAN WATER WORKS ASSOCIATION—Iowa Section. Annual Meeting (Hotel Roosevelt). Exec. Sec., H. V. Pedersen, Marshalltown Water Works, Marshalltown.

***Oct. 13-15—New Castle, Pa.**
LEAGUE OF CITIES OF THE THIRD CLASS IN PENNSYLVANIA. Annual Convention (Castleton Hotel). Exec. Dir., Walter Greenwood, 302 Municipal Bldg., Harrisburg, Pa.

Oct. 14-15—Lincoln, Nebr.
DIESEL OPERATORS CONFERENCE. Annual Conference (Student Union, University of Nebraska). For information address Robert A. Ratner, Supervisor of Institutes, University Extension Division, University of Nebraska, Lincoln, Nebr.

Oct. 14-16—Point Clear, Ala.
AMERICAN CONCRETE PRESSURE PIPE ASSOCIATION. Annual Meeting (Grand Hotel). Mang. Dir., Howard F. Peckworth, 228 N. LaSalle St., Chicago 1, Ill.

Oct. 17-20—El Paso, Texas
AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Annual Meeting (Cortez Hotel). Sec., Leslie A. Jackson, Municipal Water Works, Robinson Memorial Auditorium, Little Rock, Ark.

(*Continued on page* 199)

New hi-performance Jaeger pump

Pumps all the water a 2" hose can handle . . .

at easy, long-life engine speeds.

Weighs only 160 lbs. on base, 190 on pneumatics.

Delivering 10,000 gph when operating at only 2400 to 2550 rpm, this latest Model 2PN will actually pump all the water that can be pulled through a 2" suction line under average working conditions. In spite of this high capacity and pressure it is extremely light, compact and economical in price. *Ask your Jaeger distributor or write us.*

THE JAEGER MACHINE COMPANY 505 Dublin Avenue Columbus 16, Ohio

LOADERS • COMPRESSORS • MIXERS • PAVING MACHINES

In hydrants, too, it's important to have *Unobstructed flow*

SINCE 1909

Look at a cutaway view before you buy any hydrant! You'll be surprised how few provide an absolutely unobstructed waterway! And *no one* but Iowa offers you *all* this and much more—

1. Provides full and unobstructed waterway for maximum flow of water from main to nozzle.
2. All internal working parts removable through top of hydrant for periodic inspection.
3. Superintendents find Iowa hydrants easy to keep in "tip-top" operating condition—no special tools required.
4. Main valve holds tight in closed position so that—should hydrant be damaged—no loss of water, or flooding, will occur.
5. Two-piece operating nut eliminates binding or distortion of working parts (sometimes caused by expansion and contraction)—makes Iowa hydrants easy to open and close at all times.
6. Complete drainage by sure acting drain, prevents freezing.
7. Fully bronze mounted throughout—meet all requirements of A. W. W. A.—have proved their ruggedness and reliability to waterworks men everywhere.
8. Available with any type of connection.

Get ALL the facts! Write

IOWA VALVE COMPANY

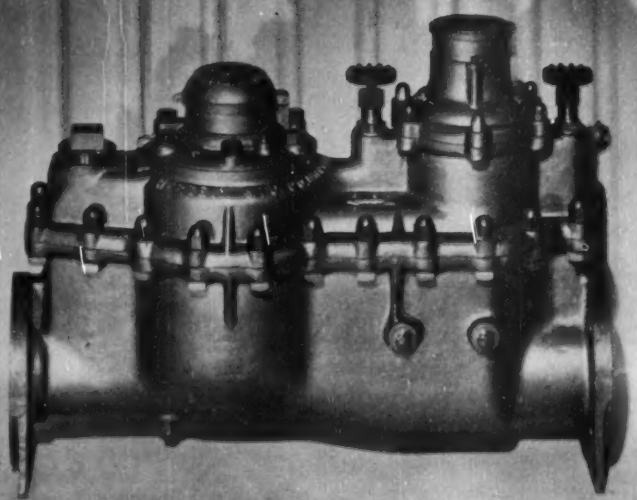
201-299 N. Talman Ave., Chicago 80, Ill.

A subsidiary of James B. Clow & Sons

This Hersey Compound Water Meter

HAS NEVER BEEN EQUALED!

. . . There is no substitute for our 69 years of progressive experience in designing and building water meters.



HERSEY MANUFACTURING COMPANY

SOUTH BOSTON, MASS.

BRANCH OFFICES: NEW YORK PORTLAND, ORE. PHILADELPHIA ATLANTA DALLAS CHICAGO SAN FRANCISCO LOS ANGELES

(*Continued from page* 197)

Oct. 17-20—Los Angeles, Calif.
LEAGUE OF CALIFORNIA CITIES. Annual Meeting (Biltmore Hotel). Exec. Dir., Richard Carpenter, Hotel Claremont, Berkeley 5, Calif.

Oct. 18-21—Houston, Texas
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Rice Hotel). Exec. Sec., Chief Jay W. Stevens, Pacific Coast Association of Fire Chiefs, Merchants' Exchange Bldg., San Francisco 4, Calif.

Oct. 19-22—Atlantic City, N. J.
PENNSYLVANIA WATER WORKS ASSOCIATION. Annual Meeting (Chalfonte Hotel). Sec., David Dunlap, 2609 N. Second St., Harrisburg, Pa.

Oct. 19-22—Winston-Salem, N. C.
NORTH CAROLINA LEAGUE OF MUNICIPALITIES. Annual Convention (Hotel Robert E. Lee). Exec. Sec., Mrs. Davetta L. Steed, 1009 Raleigh Bldg., Raleigh, N. C.

Oct. 22-23—Little Rock, Ark.
ARKANSAS MUNICIPAL LEAGUE. Annual Convention (Marion Hotel). Exec. Dir., Glenn Zimmerman, 416 Maple N., Little Rock, Ark.

Oct. 24-26—Fort Worth, Texas
LEAGUE OF TEXAS MUNICIPALITIES. Annual Convention (Hotel Texas). Exec. Dir., E. E. McAdams, 108 E. 19th St., Austin, Texas.

Oct. 24-26—Kansas City, Kans.
KANSAS ASSOCIATION OF MUNICIPAL UTILITIES. Annual Convention (Town House Hotel). Ass't. Sec., A. D. McGuire, P. O. Box 99, Overland Park, Kans.

Oct. 24-27—Birmingham, Ala.
AMERICAN WATER WORKS ASSOCIATION—Alabama-Mississippi Section. Annual Meeting (Tutwiler Hotel). Sec.-Treas., C. W. White, 537 Dexter Ave., Montgomery, Ala.

Oct. 25-27—Stillwater, Okla.
DIESEL POWER PLANT OPERATORS CONFERENCE. Annual Meeting (Student Union, A & M College). For information address L. Sheerer, Exec. Dir., Division of Engr. & Ind. Extension, Oklahoma Institute of Technology, Stillwater, Okla.

Oct. 26-29—Long Beach, Calif.
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Meeting (Wilton Hotel). Sec., Henry F. Jerauld, Water Department, 1040 Manzanita, Pasadena 3, Calif.

Oct. 27-29—Baltimore, Md.
AMERICAN WATER WORKS ASSOCIATION—Chesapeake Section. Annual Meeting (Sheraton Belvedere). Sec., C. J. Lauter, 6955 33rd St. NW., Washington 15, D. C.

Oct. 28-30—Memphis, Tenn.
UNITED STATES CIVIL DEFENSE COUNCIL. Annual Conference (Peabody Hotel). Exec. Sec., Mary E. Baker, 314 Hartman Bldg., Columbus, Ohio.

Nov. 3-5—Richmond, Va.
AMERICAN WATER WORKS ASSOCIATION—Virginia Section. Annual Meeting (Jefferson Hotel). Sec.-Treas., 213 Carlton Terrace Bldg., Roanoke 16, Va.

Nov. 4-6—Atlantic City, N. J.
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Annual Meeting (Hotel Madison). Sec.-Treas., C. B. Tygert, Box 178, Newark 1, N. J.

Nov. 5-10—Chicago, Ill.
ADULT EDUCATION ASSOCIATION OF THE UNITED STATES. National Conference on Adult Education (Morrison Hotel). Pres., Paul H. Sheats, 743 N. Wabash, Chicago, Ill.

Nov. 7-9—St. Petersburg, Fla.
AMERICAN WATER WORKS ASSOCIATION—Florida Section. Annual Meeting (Soreno Hotel). Exec. Sec., Harvey Skaggs, P. O. Box 2328, Jacksonville, Fla.

(*Continued on page* 201)

Electric Light and Power for Every Need

ONAN ELECTRIC PLANTS

New Emergency Power Unit

carries 10,000 watts of *fire-fighting light and power*

Built to specifications of the Greensboro, N. C. fire department, this power unit incorporates many new ideas. Both sides of the truck, for instance, hold identical equipment. Located in the many steel compartments are four 500-watt floodlights, five 150-watt hand lights, electric saws, suction fans, electric drills, two 300-foot reels of light cord, an acetylene cutting and welding outfit and dozens of other items. Four more 500-watt floodlights are mounted on top of the truck on standards which can be raised to 4½ feet above the truck roof.

Power for all electrical equipment is supplied by an Onan heavy-duty, 10,000-watt water-cooled electric plant. Its dimensions allow it to be placed across the truck body behind the cab. The plant is started electrically.

Whether your requirement is for a truck-mounted power unit such as this one, or for smaller hand-portable units, Onan has the dependable 4-cycle-engine-powered plants that meet your specifications.

MODEL 10HQ, 10,000 Watts

This is the Onan model used in the Greensboro unit. Powered by a 4-cylinder, heavy-duty gasoline engine. Equipped with all necessary instruments and controls.

WRITE TODAY

Special folder shows scores of Onan models for fire department use.

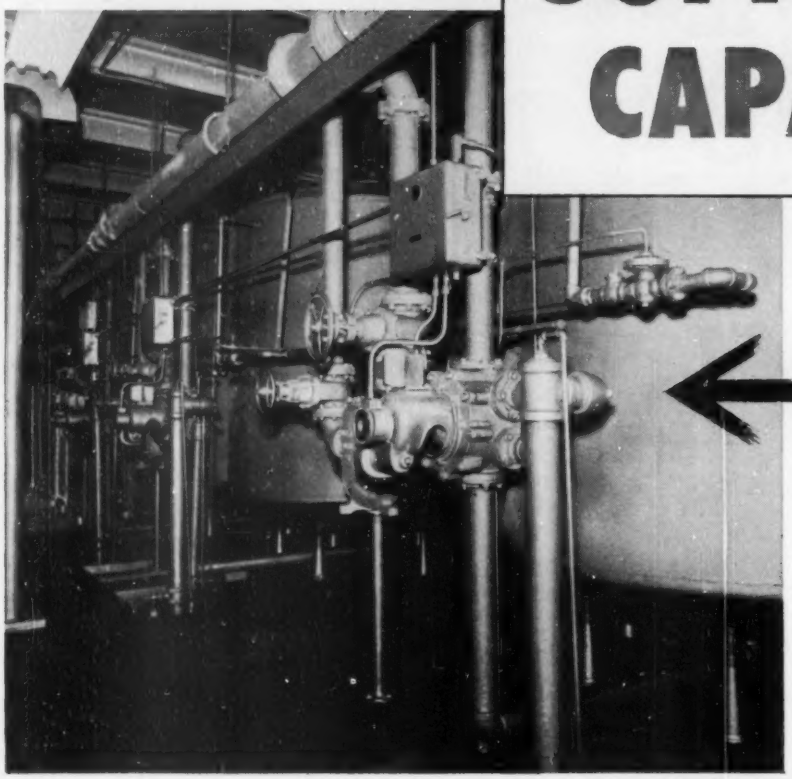
Onan ELECTRIC PLANTS

D. W. ONAN & SONS INC.

8365 University Ave. S. E., Minneapolis 14, Minnesota

How the Town of Normal, Illinois

TRIPLED SOFTENING CAPACITY



...of the same softeners

...by changing to PERMUTIT Q

Replacing old-fashioned zeolite with the high-capacity ion exchange resin, Permutit Q, saves Normal over $7,000 a year!

Normal's three automatic softeners were installed back in 1946, before high-capacity Permutit Q was available. Each softener removed hardness from 83,000 gallons of water between regenerations for a daily delivery of 700,000 gallons of softened water.

Recently town officials called in Consulting Engineers, Farnsworth and Conley, of Bloomington, Illinois, who recommended replacing zeolite with modern, high-capacity Permutit Q.

Look at the benefits gained from this change! The capacity of each softener is up from 83 to 270 thousand gallons between regenerations. Salt Consumption – down to about ¼ lb. per thousand grains of hardness removed. Flow Rate–up from 285 to 510 gpm. Regenerations – down from 3 times to once per day per softener.

A change to Permutit Q may effect similar economies for your city. We'll gladly send helpful data.

The Permutit Company, Dept. AC-9, 330 West 42nd Street, New York 36, N. Y., or Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.

WATER CONDITIONING HEADQUARTERS FOR OVER 40 YEARS

PERMUTIT®

(*Continued from page 199*)

***Nov. 7-10—Kansas City, Mo.**
NATIONAL MUNICIPAL LEAGUE. Annual Meeting (President Hotel). For information, address Alfred Willoughby, NML, 542 Fifth Ave., New York 36, N. Y.

Nov. 8-9—Asheville, N. C.
AMERICAN WATER WORKS ASSOCIATION—North Carolina Section. Annual Meeting (George Vanderbilt Hotel). Sec.-Treas., E. C. Hubbard, P. O. Box 2091, Raleigh, N. C.

Nov. 8-9—Huntington, W. Va.
AMERICAN WATER WORKS ASSOCIATION—West Virginia Section. Annual Meeting (Pritchard Hotel). Exec. Sec., H. K. Gidley, State Health Dept., Charleston, W. Va.

***Nov. 9-10—Colorado Springs, Colo.**
AMERICAN WATER WORK. ASSOCIATION—Rocky Mountain Section. Annual Meeting (Broadmoor Hotel). Exec. Sec., George J. Turre, Board of Water Commissioners, Box 690, Denver Colo.

Nov. 9-11—Seattle, Wash.
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Convention (Olympic Hotel). Exec. Sec., Hal H. Hale, 917 National Press Bldg., Washington 4, D. C.

***Nov. 11-13—Easton, Md.**
MARYLAND MUNICIPAL LEAGUE. Annual Convention (Tidewater Inn). Exec. Sec., Ed Johnson, Box 276, College Park, Md.

***Nov. 12-13—Wheeling, W. Va.**
LEAGUE OF WEST VIRGINIA MUNICIPALITIES. Annual Convention (McClurg Hotel). Exec. Sec., Pat E. Maloney, P. O. Box 3141, Charleston, W. Va.

***Nov. 15-17—Portland, Ore.**
LEAGUE OF OREGON CITIES AND THE OREGON FINANCE OFFICERS ASSOCIATION. Annual Convention (Multnomah Hotel). Exec. Sec., Herman Kehrli, Commonwealth Hall, University of Oregon, Eugene, Ore.

***Nov. 16-19—Atlantic City, N. J.**
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Meeting (Chalfonte-Haddon Hall). Acting Exec. Dir., Madeleine S. Frost, 603 Trenton Trust Bldg., Trenton, N. J.

***Nov. 16-20—Stillwater, Okla.**
OKLAHOMA SHORT SCHOOL FOR WATER AND SEWAGE OPERATORS. (Student Union of Oklahoma A & M College). Exec. Sec., H. J. Darcey, Dir., Bureau of Sanitary Engineering, 3400 N. Eastern, Oklahoma City, Okla.

***Nov. 18-19—Princeton, N. J.**
THE TAX INSTITUTE. Symposium on "Financing Metropolitan Government." (Princeton Inn). Exec. Dir., Mabel L. Walker, 457 Nassau St., Princeton, N. J.

Nov. 28-Dec. 1—Philadelphia, Pa.
AMERICAN MUNICIPAL ASSOCIATION. Annual Convention (Bellevue-Stratford). Exec. Dir., Patrick Healy, Jr., 523 Transportation Bldg., Washington, D. C.

***Dec. 2-4—Havana, Cuba**
AMERICAN WATER WORKS ASSOCIATION—Cuban Section. Annual Meeting (Sociedad Cubana de Engenieros). Sec., Laurence H. Daniel, Baratillo 9, Havana, Cuba.

Dec. 2-7—San Juan, Puerto Rico
INTERAMERICAN MUNICIPAL ORGANIZATION. Interamerican Congress of Municipalities. For information address Comision Panamericana de Cooperacion Intermunicipal, 351 Obispo St., Habana, Cuba.

Dec. 5-8—St. Petersburg, Fla.
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Convention (Vinoy-Park Hotel). Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago 37, Ill.

***Jan. 10-13—New Orleans, La.**
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Meeting (Hotel Roosevelt). Exec. Vice-Pres., General Eugene Reybold, World Center Bldg., Washington 6, D. C.

The new Delaware pool in the Town of Tonawanda, N. Y., is so popular that swimmers are admitted in shifts — 300 strong. Despite this heavy load, Adams filters keep the water glistening clean.

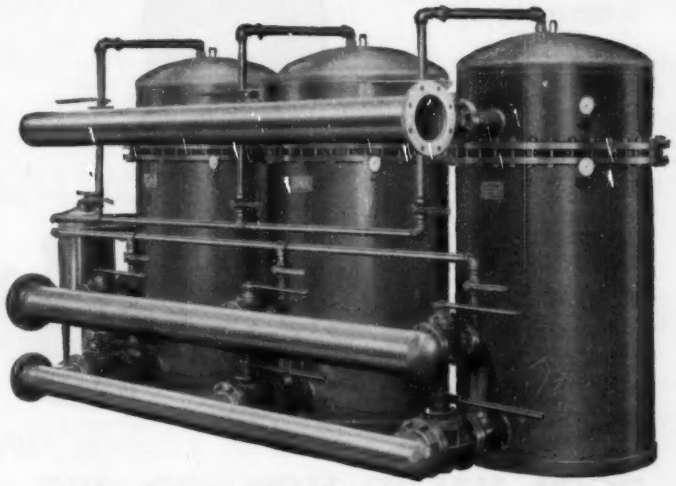
It's easy to keep your pool water Crystal Clear at Lower Costs

Hundreds of swimming pools across the nation have found that Adams filtration packages are the right answer. That's because of the advanced engineering design . . . diatomite filtration . . . permanent Poro-Stone elements . . . compact installation . . . simple operation featuring a new backwash technique.

We have a wide range of filters and delivery is prompt. You'll find the price of crystal clear water for your pool is amazingly low, so write for complete information, today.

ADAMS *SPF*...

TODAY'S FINEST SWIMMING POOL FILTER



Adams filter installation at Garfield Park Pool, Grand Rapids, Mich.

R. P. ADAMS Co., Inc.

232 EAST PARK DRIVE
BUFFALO 17, N. Y.

Catalogs for You

Write directly to the manufacturer or use coupon on page 25

"Painless" Way to Collect Parking Meter Fines

276 This simple, effective method of assessing, collecting, and accounting for parking meter fines not only builds public good will, but it increases both the percentage of fines paid and the net revenue from parking fines. How the Traf-O-Teria System works, and what it will cost your community to operate, is explained in literature from the TRAF-O-TERIA SYSTEM, DEPT. A, EL DORADO, KANS.

Water Meters

277 Recommended by an increasing number of water-works officials, Hersey water meters are designed for dependable economical operation, and for years of accurate registration. They are fully described in literature from the HERSEY MFG. CO., SOUTH BOSTON, MASS.

Portable Air Compressor

278 The majority of your street construction and maintenance jobs are easier with this new, lightweight, portable air compressor powered by an air-cooled, 4-cylinder Wisconsin VF4D engine. The Model 55 air compressor operates both heavy breakers and light rock drills with maximum efficiency. It is made by the P. K. LINDSAY CO., 97 TILESTON ST., EVERETT 49, MASS.

IF YOU HAVE EXPERIENCED

Water Shortage—Surge—Unnecessary Waste

INSTALL ROSS VALVES FOR CONTROL OF WATER STORAGE, SUPPLY CONDUIT AND DISTRIBUTION PRESSURES

ROSS SINCE 1879

MANUFACTURERS OF AUTOMATIC HYDRAULIC CONTROL VALVES AND SPECIALTIES

PRESSURE REDUCING VALVE

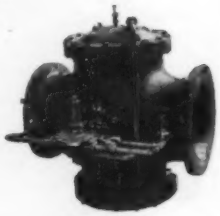
SURGE RELIEF OR BACK PRESSURE VALVE

OTHER ROSS PRODUCTS:

FLOAT VALVES
STRAINERS

HYDRAULIC BOOSTER PUMPS FOR CHLORINE FEED

HYDRAULIC AND ELECTRIC CONTROLLED VALVES



ALTITUDE VALVE

ROSS VALVE MFG. CO. INC.

8 Oakwood Ave. Troy, N. Y.

Cleans 30 Catch Basins Daily

279 Equipped with two pneumatic orange peel or clamshell buckets, the Netco catch-basin cleaner removes all debris from sewer openings as small as 16 inches. The unit is quickly mounted on any short wheel base truck with 8 feet in back of the cab, and may be operated continuously, averaging up to 30 catch basins a day. It is made by the NETCO DIV., CLARK-WILCOX CO., 118 WESTERN AVE., BOSTON 34, MASS.

Distributor for Trickling Filters

280 Trickling filter operation, an additional step in treating sewage to provide greater purity, is discussed in *Bulletin* 23S70, available from WALKER PROCESS EQUIPMENT INC., 840 N. RUSSELL AVE., AURORA, ILL. The bulletin describes the new Rotoseal rotary distributor in sizes to 216 feet maximum bed diameter. It includes valuable data which will aid you in designing a complete trickling filter unit.

Ice-Skating Rinks

281 If your city is planning the installation of an indoor or outdoor ice-skating rink, the new booklet, *Ice and Frost*, will provide you with a wealth of valuable information. Of special interest in the outdoor rink, used largely by parks and schools, which may be maintained continuously through late fall and winter. Write the FRICK COMPANY, WAYNESBORO, PA.

Check Valves Stop Water Hammer

282 You can control annoying water hammer in pipelines with these new silent check valves available in 1- through 20-inch sizes. Easily installed between flanges, the valves remain tight under all conditions, assuring the uninterrupted flow of liquids. They are quickly removed and easily reseated without special tools. Get *Bulletin No.* 654 from THE WILLIAMS GAUGE CO., INC., 3013 PENNSYLVANIA AVE., PITTSBURGH 33, PA.

Dual-Fuel, Gas and 2-Cycle Diesel Engines

283 Easily operated on heavy, straight-run residual fuel oils, Nordberg 2-cycle diesel engines combine increased power capacity with lower fuel bills. One such unit, a 7,000-hp diesel operating at the Grand Haven (Mich.) power plant, produced power for over a year for 14.16 kwhrs per gallon of fuel. Detailed information on 2-cycle diesels, duafuel and spark-fired gas engines may be obtained from the NORDBERG MFG. CO., MILWAUKEE, WIS.

Custom-Built Valves for Water Control

284 Protect supply and distribution lines as well as pumps, pump motors, and other parts of your water works system with effective valves, custom-built by THE PELTON WATER WHEEL CO., 2029 NINETEENTH ST., SAN FRANCISCO 10, CALIF. Included in the company's line are gate, butterfly, and needle valves, spherical valves, Larner-Johnson valves, and others. Request *Bulletin No. 40.*

Electric Hoists

285 Detailed information on Quik-Lift electric hoists including construction data, specifications and dimensions, is contained in a new 6-page bulletin from the COFFING HOIST CO., DANVILLE, ILL. There are 17 Quik-Lift models, ranging from 500- to 4,000-pound capacities, each insuring fast, safe, and dependable lifting in a variety of municipal operations. Ask for *Bulletin QL.*

What's C. H.?

(*Continued from page* 195)

Ohio. To forestall inquiries from readers of THE AMERICAN CITY about the abbreviation C. H., the editors have queried the city's officials. We are told that, legally speaking, the municipality is named City of Washington, Fayette County, Ohio.

However, many years ago, there were three or four other Washingtons in Ohio. And so, for all purposes not necessarily legal—particularly mailing—this particular town adopted the name of Washington Court House, Ohio.

Second Birthday For New York Civil Defense Group

NEW YORK CITY'S 514 member Ground Observer Corps celebrated in July the second anniversary of their full-time, 24-hour-a-day "Operation Skywatch"—a program designed to warn the nation's biggest city of the approach of hostile aircraft.

The women and men who staff the city's two observation posts every hour of every day in all kinds of weather were the recipients of letters of appreciation from Mayor Robert F. Wagner and New York City Civil Defense Director, Herbert R. O'Brien.

Workers for the Ground Observer Corps of New York City's Civil Defense organization are recruited by the Air Warden Service but they receive their training and are under the direction and jurisdiction of the U. S. Air Force.

Office Buildings In the Suburbs

BENEFITS to the suburbs from the trend toward locating headquarters of large business concerns away from congested urban centers are analyzed in a study of "Office Buildings in the Suburbs," published August 1954 by the Urban Land Institute.

Frederick P. Clark, community planning consultant, author of the study points out that the suburbs stand to benefit from the broadened tax base which relieves the tax burden on homeowners, from the ability of local residents to work closer to home, and from the fact that businessmen then have a greater interest in the community in which they work.

"If the office buildings are to be welcomed in residential communities, they must be located on large sites with wide setbacks so as to retain a character of openness in keeping with the home areas surrounding them, and traffic density must be kept low," Mr. Clark states.

"When there is assurance that office developments will preserve this type of environment, suburban communities are looking on them with favor.

"In fact, the new type of development represented by office buildings fits well into the suburban atmosphere because the business concerns that seek to move there are seeking the same qualities of environment that the communities are seeking to preserve."

Mr. Clark believes that the movement of business offices to the suburbs will be modest when compared with the total amount of big city office space, but he thinks that even a small amount of this new business development can have important economic effects on the suburban areas concerned.

Copies of the study may be obtained from the Urban Land Institute, 1737 K St. NW., Washington 6, D. C., for $1 each.

RAISE MANHOLES
... EXPERTLY
... INEXPENSIVELY

Let's do a little plain talking about your street work.

Here are some of the questions that you and your friends generally ask:

Q: What about cost?

A: The WB "Manhole Adapter" is much less expensive to install than adjusting the manhole ring by the old method.

Q: Is the device safe to use?

A: The Kansas City Safety Council states, "This WB "Manhole Adapter" of yours is certainly a progressive step in street resurfacing programs."

Q: Is it necessary to tear up the street?

A: No "breaking out" is necessary, the structural strength of the street is not impaired.

Q: How about traffic?

A: Within reasonable limits, through the use of the WB "Manhole Adapter," traffic continues while resurfacing is in progress.

Q: What about the finished job?

A: The use of the WB "Manhole Adapter" permits a smooth riding surface. In rolling for compaction, the WB "Manhole Adapter" conforms to street contour.

Write for full details

Send for New Brochure

A. REED WILSON COMPANY

1320 McGee Street, Kansas City 6, Missouri

1. Blueprint of our standard manhole ring and cover enclosed.
2. Proposed elevations or height of street resurfacing material are:

NAME .....

ADDRESS .....

CITY ..... STATE .....

—by PITTSBURGH • DES MOINES

This monumental 2,500,000-gallon elevated steel tank provides balanced water storage for a large suburban area served by South Pittsburgh Water Company, Pittsburgh, Pa. Of Radial Cone Bottom design, the structure typifies in perfection of engineering and craftsmanship the quality provided by Pittsburgh-Des Moines Elevated Steel Tanks of every type. • Write for our complete *Modern Water Storage* brochure, without obligation.

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DES MOINES (8), 913 Tuttle Street
DALLAS (1), 1217 Praetorian Bldg.
SEATTLE.....520 Lane Street
SANTA CLARA, CAL., 619 Alviso Road

Cities Are Islands of Heat

IF you've ever driven out of a sweltering city on a hot summer day and felt as though you were 20 degrees cooler when you reached the suburbs, you may not have been wrong. Scientists have now measured temperature variations from city center to suburbs and found a 20-degree difference in at least one case.

Results of Experiments in California

Careful experiments were made in and around three California cities—San Francisco, Palo Alto, and San Jose. In the San Francisco area the densely built-up business district was found to be 20 degrees warmer than the undeveloped land of Golden Gate Park.

As a result of their experiments, the scientists have concluded that no matter what the weather conditions are, a characteristic temperature pattern near the ground of each city can be found. The temperatures increase from low readings found in open land at the city's boundaries to highs near the built-up centers, and the temperature increases are found to be in direct proportion to the density of structures in the areas tested.

Thus, the scientists further conclude that thick clusters of buildings make downtown sections "heat islands," with fingers that extend outward along built-up business streets. Parks and other open spaces offer cool oases in such heat islands.

Heat Contributing Factors

Tall concrete and brick buildings, crowded together between cement and asphalt streets, are the most important factors in creating the higher temperatures. Such buildings have a heat capacity and can store much

(*Continued on page* 211)

SAVE TIME AND MONEY ON YOUR CLEARING JOBS!

Servis "Gyro-57" STALK SHREDDER

It's smart farming to enrich your soil by cutting green stalks into small pieces and turning them under early. The sturdy Servis "Gyro-57" makes full 57" horizontal cut; patented multiple stationary and rotating blades make complete cut each 2" of travel at 4 mph. With disc harrow behind, stalks can be cut and turned under in one operation. Brush cutting assembly (for heavy brush up to 3" dia.) available as optional equipment.

Foolproof against stump damage

cuts tough stalks for turning under . . . all in one operation!

- ☐ Model "I-H" Whirlwind Terracer
- ☐ Model "F" (3 pt. lift) Whirlwind
- ☐ Gyro 84 and 57 Brush Cutters
- ☐ Pull Type Stalk Shredder
- ☐ Lift Type Stalk Shredder
- ☐ Zig-Zag Pulvi-Packer and Seeder
- ☐ Double Deck Soil Builder
- ☐ B & W Row-Weeder
- ☐ "Sur-Stan" Press Wheel
- ☐ 3-Way Ditcher-Terracer Blade
- ☐ No. 7 Angledozer (Row Crop Tractors)
- ☐ Berry Heavy Duty Ditcher (Row Crop Tractors)
- ☐ Hyteco Heavy Duty Angledozers (I 9 & W 9; Moline GTB)
- ☐ Dump Type Rake
- ☐ Lion "W" Loader
- ☐ "Force-Feed" Fertilizers
- ☐ Hudson Automatic Row Marker
- ☐ Wheeled Scraper (1 and 2 yds.)

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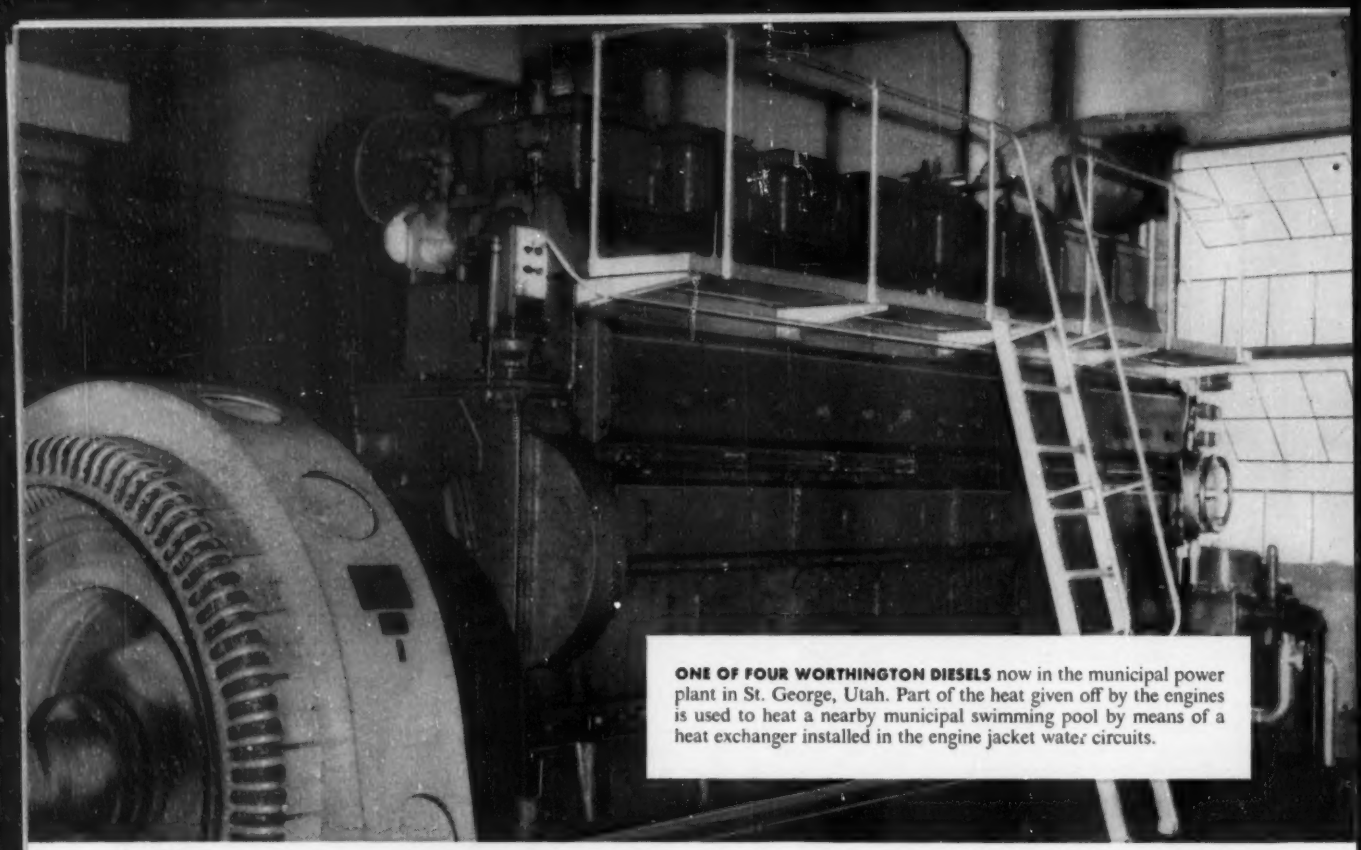
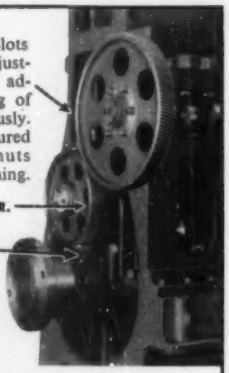


ONE OF FOUR WORTHINGTON DIESELS now in the municipal power plant in St. George, Utah. Part of the heat given off by the engines is used to heat a nearby municipal swimming pool by means of a heat exchanger installed in the engine jacket water circuits.



MAIN CAMSHAFT GEAR. Slots in gear provide single adjustment for retarding or advancing injection timing of all cylinders simultaneously. Final gear adjustment secured with castellated locknuts wired after final tightening.

FREE FLOATING IDLER GEAR.

SPLIT GEAR KEYED ON CRANKSHAFT. Permanent adjustment for perfect alignment with idler gear is easily accomplished.

WORTHINGTON HELICAL STEEL GEAR TRAIN
used on these Worthington dual fuel engines . . .

1. Provides accurate and positive control of engine timing.
2. Is located at flywheel end of engine for smooth gear operation as power impulses are absorbed by the flywheel.
3. Uses controlled automatic oil jet lubrication that eliminates wear.
4. Assures correct engine timing . . . keeps engine running smoothly . . . results in low fuel consumption and minimum engine maintenance.

Good planning keeps municipal power plant profitable

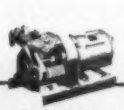
Eleven years ago, the City of St. George, Utah, started power-plant operations with two Worthington four-cycle, direct injection Diesel engines. Today, the capacity of St. George's plant is 500% greater than it was in 1942—and profits are still being returned to the City of St. George.

St. George planned its power plant to keep pace with increasing power needs and to continue to show profits. That's where Worthington came in. Worthington engineers helped St. George select exactly the right size and type of equipment—engines, circulating water pumps, fuel transfer pumps and air starting equipment.

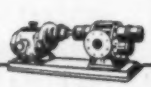
Because of its complete satisfaction with the original Worthington units, St. George purchased a third Worthington Diesel in 1947, a fourth in 1949, and a fifth in 1950. At present a total of four units are in operation, one unit having been replaced by a larger unit in 1950.

Worthington may be able to help save power costs for your community, too. Write your nearest Worthington district office or Worthington Corporation, Engine Division, Section E.3.2, Buffalo, New York. E.3.2

Worthington-Built Auxiliaries



ENGINE STARTING COMPRESSORS



OIL TRANSFER PUMPS,

COOLING WATER CIRCULATING PUMPS

EVAPORATIVE-TYPE ENGINE WATER COOLERS

Economical Continuous Power—Diesels, Oil and Dual Fuel, and Spark-Ignition Gas Engines, from 190 to 2,100 bhp.

WORTHINGTON
Engines

Moving Sidewalks Gaining in Favor

MOVING SIDEWALKS to carry large numbers of pedestrians from place to place in congested areas are gaining favor over the country. During August the city council of Houston, Texas, approved plans and specifications for a "speedwalk" over a small river to connect an automobile parking lot with the city Coliseum. Earlier in the summer a moving sidewalk was installed in the underground station of the Hudson and Manhattan Railroad in Jersey City, N. J., to carry passengers to the suburban trains of the Erie Railroad terminal.

The proposed Houston walkway will be 7 feet wide, 104 feet long, and capable of carrying 14,400 persons an hour in and out of the Coliseum. The Jersey City moving sidewalk consists of a 460-foot continuous conveyor belt, 5½ feet wide. It negotiates a 10-degree grade at the rate of 120 feet a minute.

Many plans are being discussed for additional installations. In Cincinnati, consideration is being given to a two-way passenger subway conveyor belt in the central business district. Cleveland is talking about plans for a circling "speedwalk" to carry shoppers and workers underground from its central transportation terminal throughout the downtown section. Two major shopping centers, one in California, and one in New York, with parking facilities for over 2,000 cars, are planning moving sidewalks for the convenience of their respective customers.

The August issue of the American Society of Planning Officials' *Newsletter* quotes Thomas Robins, Sr., inventor of conveyor belts, as follows: "We are entering a new era of mechanization in which conveyors will perform more of the work now done by trucks, railroad cars and other equipment that run on wheels."

Final Sale of Government Property in Greenbelt

THE federal government will write "finis" to a unique chapter in its history in late October, when the Public Housing Administration will open bids for the sale of the last properties in federal ownership at Greenbelt, Maryland. With the sale of the Greenbelt shopping center and a small commercial tract in the north end of the town, the government will end a 19-year experiment in the development and ownership of planned suburban towns.

Three towns: Greenhills, 5 miles north of Cincinnati; Greendale, 3 miles southwest of Milwaukee; and Greenbelt, which is 7 miles north of Washington, D. C., were built in the 1930's as part of the experiment. Hailed as the "first completely planned communities ever built in the United States," the towns were built with emergency relief funds by the Resettlement Administration and provided a peak employment for 10,600 men during their construction in the midst of the depression.

The sale of Greenbelt, which now has a population of about 7,000 persons, was begun by the government in December 1952. The first transaction was to the Greenbelt Veterans Housing Corporation and comprised most of the original 896 dwellings, and 1,000 additional units constructed during the war to meet the housing shortage. Later sales disposed of the remaining dwellings and vacant land that adjoined the town itself.

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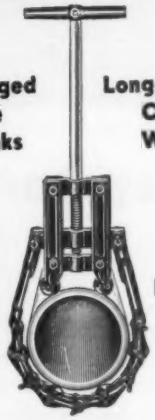
ELLIS PIPE CUTTER
FOR CUTTING LARGE SIZE PIPE



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Makes a Hit With Water Works Men

Cuts Pipe In or Out of Ditch

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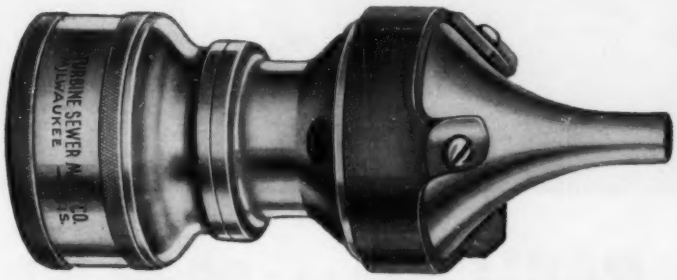

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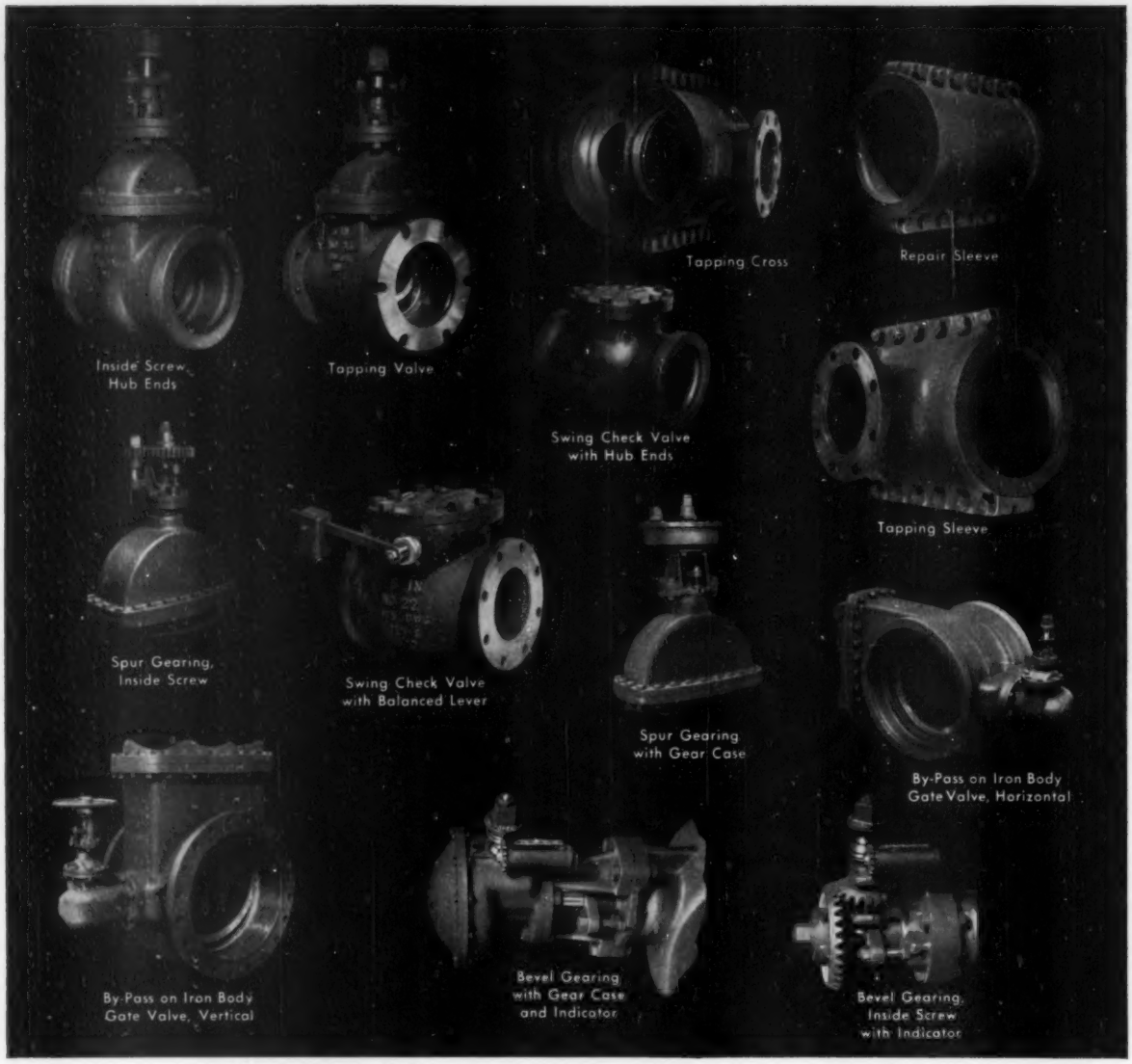
Inside Screw, Hub Ends
Tapping Valve
Tapping Cross
Repair Sleeve
Swing Check Valve with Hub Ends
Tapping Sleeve
Spur Gearing, Inside Screw
Swing Check Valve with Balanced Lever
Spur Gearing with Gear Case
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TRADE DARLING MARK

THIS composite picture gives you a rough idea of the broad range of Darling valves and allied products engineered for water distribution systems. What you cannot see here, naturally, is the unexcelled Darling quality—carefully controlled from Darling's own foundry all the way through final assembly and test. Nor can you "picture" performance advantages such as offered only by Darling's fully revolving double disc gate valve principle. For items such as shown here . . . and Darling's revolutionary B-50-B hydrants . . . it will pay you to check with Darling.

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Williamsport 10, Pa.

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(*Continued from page* 191)

PHILADELPHIA, PA.—Capital Program 1954-1959. Write Office of Mayor, Joseph S. Clark, Jr., City Hall, Philadelphia, Pa. Maps. Tables. Illus. 175 pp.

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Public Works

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Purchasing

DENVER, COLO.—How to Sell . . . to the City and County of Denver. Obtainable from Purchasing Officer, Room

(*Continued on page* 211)

ROADMASTER
Street Sweeper
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High Scleroscope Rating
Uniform temper.

Specially processed for high fatigue — against breakage. Long wearing. Conveniently cut and delivered in 100 and 200 lb. boxes. Prompt shipment from stock of all standard sizes.

This gutter broom wire will prove an economy in your service.

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The Turbo Jet power leaf mill pulverizes leaves into a fine, granular chaff that makes an excellent, easy-to-use mulch—but that's only part of the story. Where Turbo Jet really proves to be a *big* money-saver in grounds maintenance is in dramatically SPEEDING UP LEAF REMOVAL through its novel "two-way action." Turbo Jet—

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And thanks to this unique, patented design, Turbo Jet can get leaves out of the most inaccessible places—from around fences, curbs, walls, shrubbery—all the places where leaves naturally collect! Even gets leaves out of ivy and myrtle beds! TURBO JET ELIMINATES THE HAND-RAKING FUNCTION ENTIRELY—AND THAT'S WHERE YOU MAKE THE BIG SAVINGS! It's not too late to put this money-saving machine to work for you this fall—write TODAY for information.

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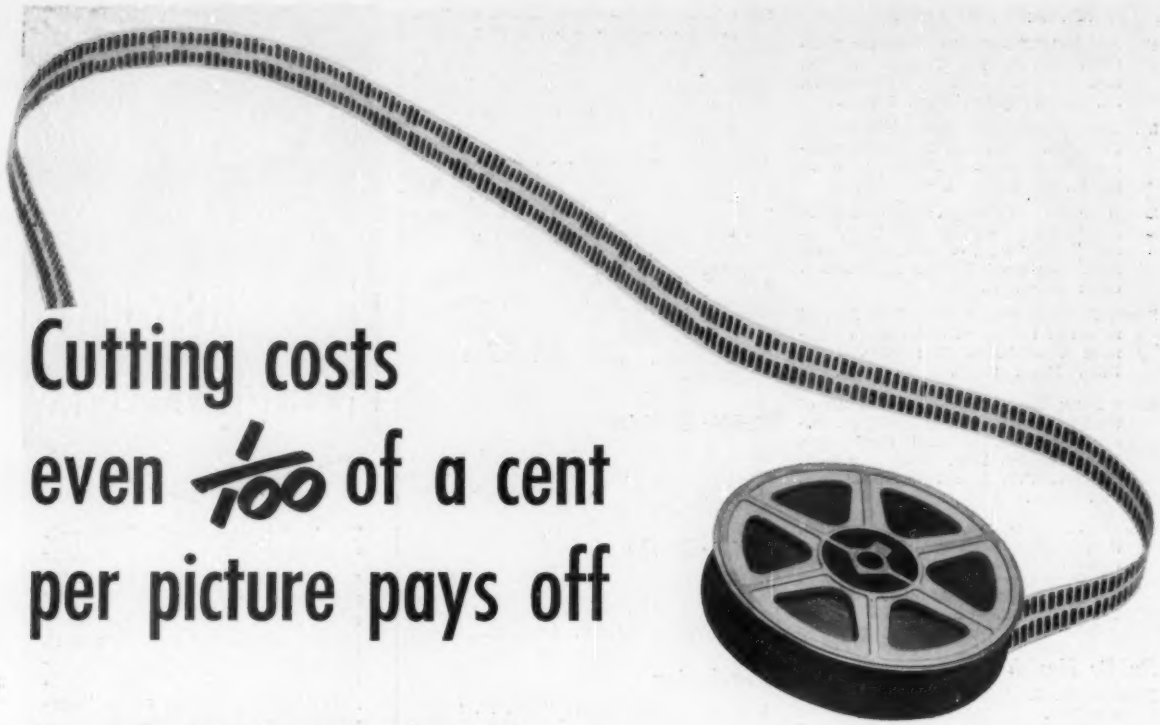

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When you're microfilming hundreds or thousands of documents per day, the savings add up quickly. Here's how you can get the lowest per-picture cost—

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Cost studies show that the ideal microfilmer for one company can be an unwise investment for another. If your volume is small, for example, it doesn't make sense to pay for features and refinements which can't be used profitably; on the other hand if your volume is large, the same "extras" will pay off.

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Recordak Junior Microfilmer includes built-in Film Reader—one of 6 Recordak Microfilmers designed for all requirements, all budgets

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originator of modern microfilming—and its application to government routines

(*Continued from page 209*)

190, 1450 Cherokee St., City and County Bldg. Illus. 12 pp.

Recreation

CHILLICOTHE, OHIO — Appraisal and Long-Range Recreation Plan. Prepared by the National Recreation Association, 315 Fourth Ave., New York, N. Y. 40 pp.

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Water Supply and Treatment

LITTLE ROCK, ARK.—Little Rock Municipal Water Works Report Ending December 31, 1953. Illus. Tables. 71 pp.

Cities Are Islands of Heat

(*Continued from page 205*)

high heat capacity and can store much solar heat during the day and liberate it at night. Other factors that contribute to the higher temperatures at the centers are exhaust fumes from trucks and automobiles on busy streets; heating plants in homes and factories; and even the human body with its 98.6 degrees temperature.

This study by Drs. Fowler S. Duckworth and James S. Sandberg is reported in greater detail in the May 1954 *Bulletin of the American Meteorological Society.*

Pumps For Sale

—with piping and accessories for 5-mgd pump house. All 440-volt, 3-phase, 60-cycle equipment. Also 25-kw. gasoline generator.

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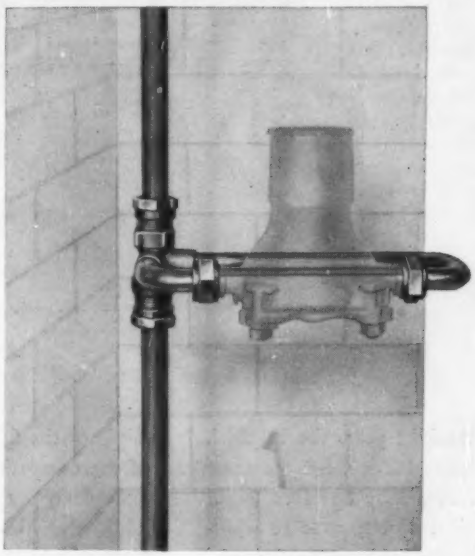
Water Works
Defiance, Ohio



For Setting Meters in Basements

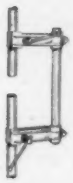
EASY TO INSTALL

The **KORNERHORN**

In a vertical basement pipe, against the wall or in a corner, the Kornerhorn makes a most satisfactory meter setting. Installation is fast and economical as pipe threading is eliminated. Send for detailed information.

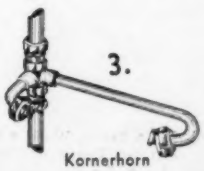
When Valves are Needed

Ford Kornerhorn valves installed on the supply side, or on both sides of the Kornerhorn add extra convenience and cleanliness when meters are changed.



1. Cut supply line. Clamp not necessary but convenient

2. Add Connections



3. Kornerhorn in place

THE FORD METER BOX COMPANY, INC.
FOR BETTER WATER SERVICES
Wabash, Indiana
FORD

3 years in a row Cooper-Bessemers help R.E.A. Plants win top awards

For the third straight year, the DIESEL PROGRESS Bronze Plaque, for the most efficient and economically operated Rural Electrification Administration plant, goes to a co-operative equipped with Cooper-Bessemer engines.

In 1953, as in 1952, Wolverine Electric Co-op's Johnson Plant at Hersey, Michigan, was the *first* choice. Here, three Cooper-Bessemers are part of the engine team that generated power throughout 1953 at an adjusted net operating cost of only 6.48 mills per kilowatt hour. The top award of 1951 was presented to the Graham County Electric Co-op, Pima, Arizona, powered by five super-charged Cooper-Bessemer Gas-Diesels.

Eight of the fifteen awards presented during the history of the competition have gone to R.E.A. plants powered exclusively by Cooper-Bessemer units. Power for *two* additional award winning plants has been shared by Cooper-Bessemers. *Ten out of fifteen* . . . an impressive record of dependable performance, lasting economy and minimum maintenance.

Such *consistent* operating efficiency, low maintenance, and lasting economy can go to work for you, too. For heavy-duty power needs . . . Gas-Diesel, Diesel or gas engines . . . remember Cooper-Bessemer. Consult with our nearest representative who will gladly work with you on your power problems.

New York City • Seattle, Wash. • Bradford, Pa. • Chicago, Ill. • Dallas Houston, Greggton, Pampa and Odessa, Texas • Washington, D. C. Shreveport, La. • San Francisco, Los Angeles, Calif. • St. Louis, Mo. Gloucester, Mass. • New Orleans, La. • Tulsa, Okla.

MOUNT VERNON, OHIO
COOPER-BESSEMER
GROVE CITY, PENNA.

DIESELS • GAS ENGINES • GAS-DIESELS • ENGINE-DRIVEN AND MOTOR-DRIVEN COMPRESSORS

Purchasing News

Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

The new supersized Load Packer combines good compaction with increased payloads.

Big-Bodied Refuse Trucks Unveiled

Three new supersized Gar Wood Load Packers will be unveiled at the American Public Works Association Congress to be held this September 19-22 in Atlantic City, N. J. Two of these will be able to hold 20 cubic yards each; the third will hold 24 yards. Gar Wood officials report that the truck bodies have been designed to meet the demands of city officials for a unit large enough to reduce the number of trips to the disposal area, yet, efficient enough to guarantee good compaction.

In the past, compaction has suffered as the loads have increased, and a truck body around 16 yards seemed the largest that was practical, Gar Wood officials explained. However, the present design overcomes compaction problems by the use of a new "Dual Thrust" compactor. In addition to the "ram-door" which exerts 70,000 pounds pressure on all Gar Wood units, the new design supplies a second packing plate, called the jam-packing panel, able to produce an additional pressure of 35,000 pounds against the load. This is located within the body and above the ram-door. The complete dual-thrust packing sequence requires only five seconds of the operators's time.

This "Dual Thrust" compactor assembly has made it possible to increase the payloads substantially over those recorded with a 16-yard body. Tests, under actual operating conditions, show a 24% increase for the 20-yard body, and a 35% increase for the 24-yard unit. The 20-yard body can be supplied without the dual feature and will still provide a 10% larger payload.

The larger bodies, test studies show, will reduce the number of trucks required on a typical refuse collection route, thus reducing truck operating and maintenance costs. To avoid overloads on streets and highways, the body is designed for tandem axle as well as single axle mounting. The bodies have been designed to permit their use on a standard, relatively short wheelbase truck.

The new bodies retain other characteristic Gar Wood features. They provide low, wide hoppers, permitting easy, convenient loading. Their design permits the loading of any type of refuse from old tires to cement blocks, and the operator has to use only one handle to load and compact the hopper of refuse.

The new refuse bodies have been furnished with a dumping angle of over 50°. As is the case with other Gar Wood units, they have been tapered to permit easy discharge of the load.

A new brochure describes the big bodied refuse trucks in detail. For your copy, write GAR WOOD INDUSTRIES, INC., WAYNE, MICH., or you may use the Post Card on the colored page in this section. Circle No. 740.

Johnson Well Screens Have Golden Anniversary

Some 50 years ago, Edward E. Johnson developed a well screen with continuous V-shaped slot openings that was to provide greater intake capacity for wells drilled in water-bearing sands and gravels. Today, under the direction of W. M. Bollenbach, Edward E. Johnson, Inc., continues to manufacture these screens, retaining the use of continuous slot openings.

Before his death in 1937, Mr. Johnson had introduced a new method of fabricating well screens. Electric welding, he found, would produce a stronger screen without sacrificing open area and efficiency. This method has enabled the company to use corrosion-resistant alloys for well screens; among them Everdur, stainless steel, Monel, cupro-nickel and pure nickel.

Mr. Bollenbach, associated with the company for the past 26 years, has been president since 1937. Main offices of Edward E. Johnson, Inc., are at 2304 Long Ave., St. Paul 14, Minn.

W. M. Bollenbach

Ground Water Studies

The MANU-MINE RESEARCH AND DEVELOPMENT CO., P.O. BOX 167, READING, PA., offers dependable service in the fields of ground water studies, foundation engineering, soil stabilization, water control, ground-bearing support, and field analyses of water reservoirs and water-supply systems. These services are performed by a competent engineering staff and trained operating personnel.

A variety of jobs are included in the firm's range of operations. Among them are the rehabilitation of water reservoirs by filling and solidifying void spaces behind deck slabs; the resurfacing of concrete dams by air placement of concrete; stopping water leaks through dam and reservoir floors and walls; and the construction of reservoirs and dams.

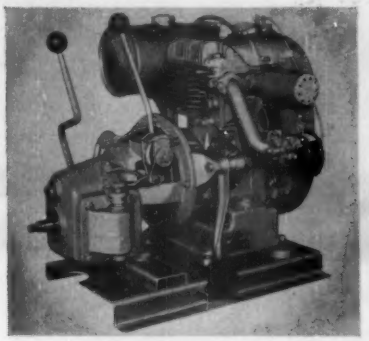
With Homelite Carryable Generators

No matter where you are . . . with a Homelite Carryable Generator, time-saving, *money-saving* power is always by your side. Yes, take a Homelite out on the job and you have instant, dependable power to operate standard universal power tools and floodlights *plus* (if you have a Homelite Dual Purpose Generator) high cycle power tools.

HOMELITE CORPORATION
109 RIVERDALE AVENUE • PORT CHESTER, N. Y.

Send for the newest bulletin on Homelite Carryable Generators. See the many ways you can save time and money with these lightweight gasoline-engine-driven generators.This bulletin is fully illustrated and gives complete information on power outputs, sizes and weights of all Homelite Generators. Write, without obligation, for your free copy, today.

Small Engine Provides Low-Cost Power



Cities using this small engine unit are assured economical power for their winches, lawn mowers, garden tractors, and certain automotive type vehicles.

The new unit is designed around the Cushman "Husky" Model M8, 17.8 cubic inch displacement, 4-cycle, single cylinder air-cooled engine, which develops 6.0 hp at 3,200 rpm. It features interchangeable clutch and transmission components which may also be used with the company's "Husky" Model M6 rated at 3.2 hp, or the Model M7 rated at 4.6 hp.

Measuring 18 inches wide, 23 inches long, and 19 inches high, the unit weighs only 120 pounds. It consists of the engine, complete with a bell housing type side plate; an automotive or manual straight line drive clutch; and a directly attached transmission with three speeds forward and a reverse.

For additional data, write Walter J. Mitchell, Manager, ENGINE SALES, CUSHMAN MOTOR WORKS, INC., 961 N. 21ST ST., LINCOLN, NEB., or you may use the Post Card on the colored page in this section. Circle No. 715.

A Simplified Sewage Works Comminutor

You don't have to rebuild your sewage treatment plant to provide it with the great advantage of comminution, according to the WORTHINGTON CORP., HARRISON, N. J. This company's comminutor is designed to give you a simple, inexpensive method of installation and, at the same time, provide dependable, trouble-free service.

Comminutors have won a firm place in the sanitary engineer's design handbook as a device that cuts and shreds coarse solids in the raw sewage, making them easier to treat in the remainder of the plant. Before they were developed, the treatment plants had to depend on hand-cleaned or mechanically-cleaned bar screens. Prior to the development of the Worthington comminutor, units of this type required special, expensive, detailed concrete construction to receive and house the unit. The Worthington comminutor, however, can be installed in any rectangular, concrete channel, without any need for changes in flow-through characteristics.

Most comminutors are placed downstream from a grit chamber and upstream from a primary settling tank, or at the inlet to the set well of a sewage lift station.

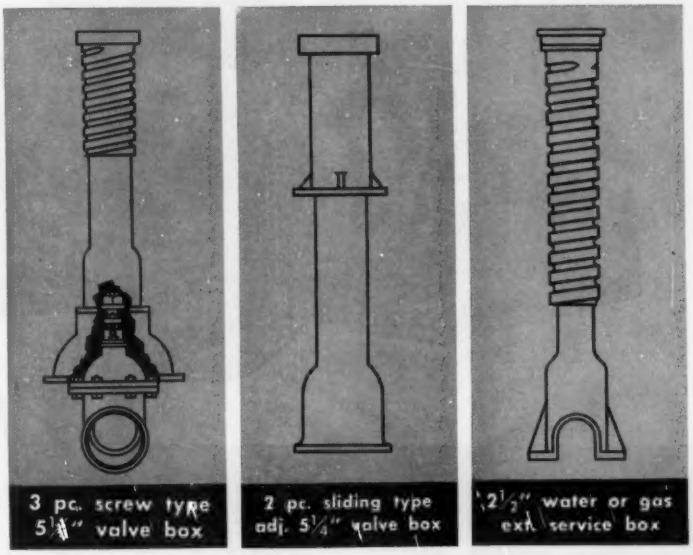
The Worthington comminutor is small, compact, and can be installed as a single or multiple unit. An engineering manual has been prepared by the company describing the comminutor in detail. When writing, ask for *Catalog W-317-B17*, or you may use the Post Card on the colored page in this section. Circle No. 704.

BUFFALO PIPE & FOUNDRY

BUFFALO MUNICIPAL CASTINGS

are available in every size and style!

No matter what size, shape or style municipal casting you may desire — you're practically sure to find a "Buffalo" casting to serve your needs. Or, where desired, castings may be made to your own specifications. Whether you need valve, service or roadway boxes, meter boxes, manhole rings and covers or other municipal castings, you'll find all "Buffalo" castings designed for service and dependability.



Prompt quotations given on all your standard or special gray iron or non-ferrous castings.

Write or wire for Bulletin M11.

SINCE 1930
BUFFALO PIPE & FOUNDRY CORP.

BOX 55 – STATION B DE 6764 BUFFALO 7, N. Y.

Announcing!

The *New* LITTLEFORD CLARKMOORE ROAD HEATER-PLANER

FOR HEATING AND PLANING BITUMINOUS ROADS AND STREETS

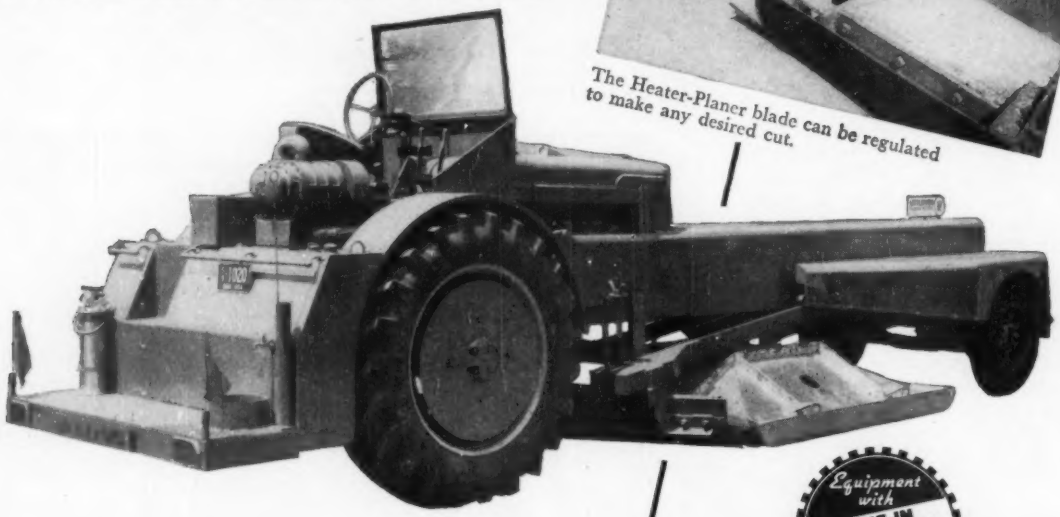
Littleford-Clarkmoore Heater-Planer is designed to economically smooth out corrugated, rutted and irregular bituminous surfaces on roads, streets, airport runways and highways in one continuous operation.

This versatile unit will plane off high crowns built up by numerous resurfacing applications; eliminate corrugations on hills, at stop signs, in gutters; gets rid of troughs and ruts developed by heavy traffic; will plane top surfaces to prepare for seal coating or re-surfacing with plant-mix; removes fatty sections or slippery places; roughs bad hills to avoid skidding and will provide a level course where settlement of surface makes it necessary to build up.

The operation of the Heater-Planer is made simple and easy by the hydraulically operated and controlled blade and surface heater hood. The Heater-Planer is equipped with low pressure fuel oil burner that heats fast and efficient to keep continuous operation.

This Littleford-Clarkmoore Heater-Planer is the modern maintenance unit for quick, low-cost table-smooth riding surfaces. Contact your nearest Littleford dealer or write for further details.

The Heater-Planer blade can be regulated to make any desired cut.



Equipment with BUILT-IN ENGINEERING LITTLEFORD

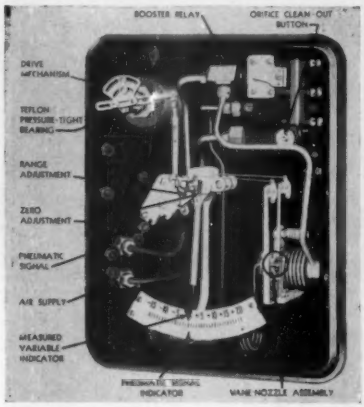
Littleford-Clarkmoore Heater-Planer planes off and windrows the material so that it can be easily shoveled into a truck. The crew works behind the Heater-Planer, not out in traffic.

BLACK TOP ROAD MAINTENANCE EQUIPMENT LB SINCE - 1900

LITTLEFORD

LITTLEFORD BROS., INC.
453 E. Pearl Street, Cincinnati 2, Ohio

New Power Plant Instrument



An internal view of the new transmitter.

Wherever power is generated, in pumping stations, sewage plants, and other municipal installations, the use of this new universal transmitting unit will simplify all pneumatic telemetering and control systems.

The pneumatic transmitter is made by the Bailey Meter Co., and is available for transmitting measurements of flow, level, pressure, temperature, draft, differential, and vacuum. The measuring element actuates the transmitter's micro-sensitive vane, nozzle, and booster assembly. Pneumatic receivers and/or controllers may be actuated by transmitted signals of 3-15 and 3-27 psig. Both the measured variable and pneumatic signal are indicated on a common scale, facilitating checking and comparison.

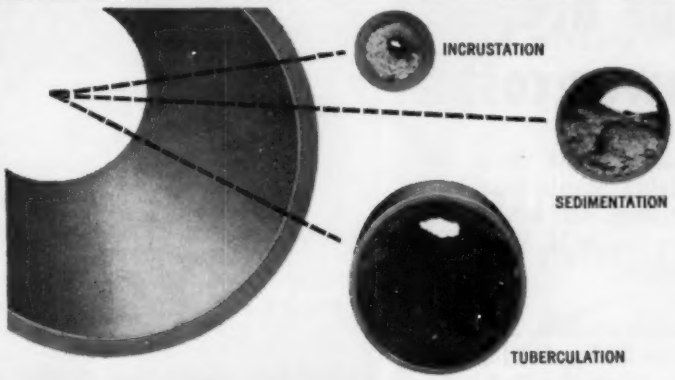
Detailed information on the pneumatic transmitter may be obtained from the BAILEY METER CO., 1050 IVANHOE RD., CLEVELAND 10, OHIO. Write directly, specifying the measured variable concerned, or use the Post Card on the colored page in this section. Circle 703.

New Type Incinerator Stokers Gain Favor

Currently 16 incinerators representing over 5,500 tons of 24-hour incinerator capacity are using or shortly will be using the new Flynn and Emrich incinerator stokers. The largest of these is the 900-ton Cleveland plant, partially completed, using six stokers, each with 237½ square feet of area. The second largest is the 800-ton Baltimore incinerator No. 4 that is planning to use four stokers, each with an area of 292½ square feet. Baltimore also has the third largest installation, a 600-ton incinerator at Reedbird Ave., with four grates, each 246½ square feet in size. The Reedbird plant was the nation's first to use these hydraulically powered stokers, and its successful operation has encouraged the use of stokers elsewhere.

The stokers are designed to fit into a rectangular type, mutual assist incinerator. They are placed on an incline of about 15°, permitting the refuse to be fed from the back of the incinerator and gradually worked down to the front. Thus, the manufacturer points out, it provides a continuous feed operation without damage to the fire bed. Test runs at the Reedbird plant by Baltimore officials show that it can burn thoroughly at substantial overloads.

Details on the stoker may be obtained by writing to FLYNN AND EMRICH CO., 301 N. HOLLIDAY ST., BALTIMORE 2, MD., or use of the Post Card on the colored page in this section. Circle No. 725.



NATIONAL KNOW-HOW PAYS!

National knows how to work quickly reducing supplementary labor costs and service interruptions.

National knows how to clean the difficult jobs, including hard incrustations, unusual obstructions and pipes of unusually large or small diameter.

National knows how to clean long runs with a minimum number of pipe entries.

National knows how to avoid trouble, such as can occur from improper provision for drainage of flush water from large mains or from the use of excessive pressures.

National knows how to clean so thoroughly that restoration of 95% of the original pipe capacity is guaranteed.

National Know-How comes from over 40 years of experience cleaning water mains.

Write or call today for information and prices.

NATIONAL WATER MAIN CLEANING COMPANY
50 Church Street · New York, N.Y.

ATLANTA, GA; 333 Candler Building • BERKELEY, CALIF; 905 Grayson Street • DECATUR, GA; P.O. Box 385 • BOSTON, MASS; 115 Petersboro Street • CHICAGO; 122 So. Michigan Avenue • ERIE, PA; 439 E. 6th Street • FLANDREAU, S.D; 315 N. Crescent Street • KANSAS CITY, MO; 406 Merchandise Mart and 2201 Grand Avenue • LITTLE FALLS, N.J; Box 91 • LOS ANGELES; 5075 Santa Fe Avenue • MINNEAPOLIS, MINN; 200 Lumber Exchange Building • RICHMOND, VA; 210 E. Franklin Street • SALT LAKE CITY; 149-151 W. Second South Street • SIGNAL MOUNTAIN, TENNESSEE; 204 Slayton Street • MONTREAL, CANADA; 2032 Union Avenue • WINNIPEG, CANADA; 576 Wall Street • HAVANA, CUBA; Lawrence H. Daniels, P.O. Box 531 • SAN JUAN, PUERTO RICO; Luis F. Caratini, Apartado 2184.

34

High lift, Big load capacity, Wheeler speed charge hoppers at lower cost

Bin-batching costs drop fast when mixing plants load hoppers with high-lift, long reach, fast-moving MM Wheeler-Loader units.

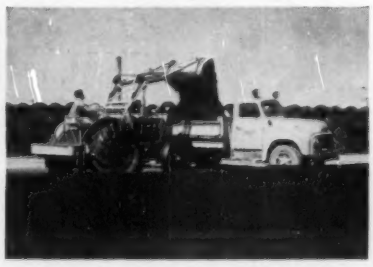
Loader attachments, built specifically for 30 hp. RTI and 57 hp. UTIL Minneapolis-Moline Wheelers, reach *up* to load the highest hoppers, *out* to fill trucks, cars, conveyors.

With exclusive shuttle speeds and instant reversing, the UTIL combines high rate of travel and hydraulic pump efficiency to make each load-and-dump trip in shortest possible time.

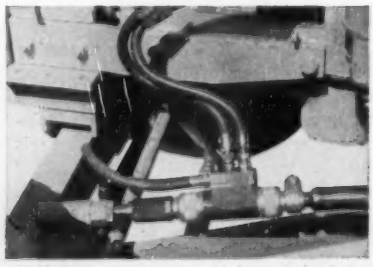
Reserve Wheeler power and greater torque at moderate rpm keeps Wheelers operating in heaviest going. For short, fast maneuvering in congested areas, Minneapolis-Moline offers heavy-duty power steering at lower cost. For any loading job, call in your Minneapolis-Moline dealer-distributor. Let him demonstrate how you can save money by replacing expensive, less maneuverable equipment with lower-cost time-saving Minneapolis-Moline Wheeler units.

MINNEAPOLIS-MOLINE
Minneapolis 1, Minnesota

Owner of this St. Paul, Minn., mixing plant replaced two loader outfits with this MM Wheeler-Loader unit, loads bins for less.



Wheeler maneuverability plus good bucket control speeds up surface mixing operations. Shuttle gearing spots loads in half the time.



UTIL Wheelers available with hydraulic POWER-flow steering for maximum operating ease. Built-in safety features insure constant control.

Purchasing News

25 Mobil-Sweepers Leave U. S.

Part of a shipment of 25 Mobil-Sweepers sent to Canada and South America.

Mobil-Sweepers, which have gained such wide popularity in the United States, are now being used in Canada and South America, according to THE CONVEYOR CO., DEPT. AC-01, 3260 E. SLAUSON AVE., LOS ANGELES, CALIF. The company recently shipped some 25 units abroad; 16 to Santiago, Chile; two to Rio de Janeiro, Brazil; six to Toronto, Ontario, Can.; and one Mobil-Sweeper to Manitoba, Can.

Easily operated by one man on all types of terrain, the low-cost unit sweeps streets with deep, wide gutters, sharp curb returns, and steep grades. It operates without the aid of pick-up crews or expensive loading equipment, and carries the load directly to the dump.

Detailed information on the Mobil-Sweeper is available directly from The Conveyor Co., or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 735.

READ HOW THIS

Brush Eater

CUTS

DISPOSAL COSTS!

Send for New FREE Booklet

This booklet was written with one idea in mind—to show you how a Fitchburg Chipper can give you efficient, reliable, all-weather brush disposal at low cost.

Read how Fitchburg Chippers help leading tree surgeons, power companies, municipalities, utilities, etc. cut their disposal costs as much as 50%, and create added customer good will.

Send for your free, valuable Fitchburg Chipper booklet—packed with facts, specifications, suggestions. Mail the coupon at right, but do it now!

FITCHBURG ENGINEERING CORPORATION
Dept. 189, Fitchburg, Massachusetts
Send me the New Chipper Booklet!

*Name*_____

*Address*_____

*City*_____

*State*_____

MAIL THE COUPON TODAY!

Catalite

REFLECTIVE

COMPOUND

✓ mileage proved

✓ dries in 6 minutes

✓ weather proofed

Catalite

REFLECTIVE

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(Beads and Paint)

PREMIX REFLECTIVE TRAFFIC PAINT AT ITS BEST . .

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EASILY APPLIED

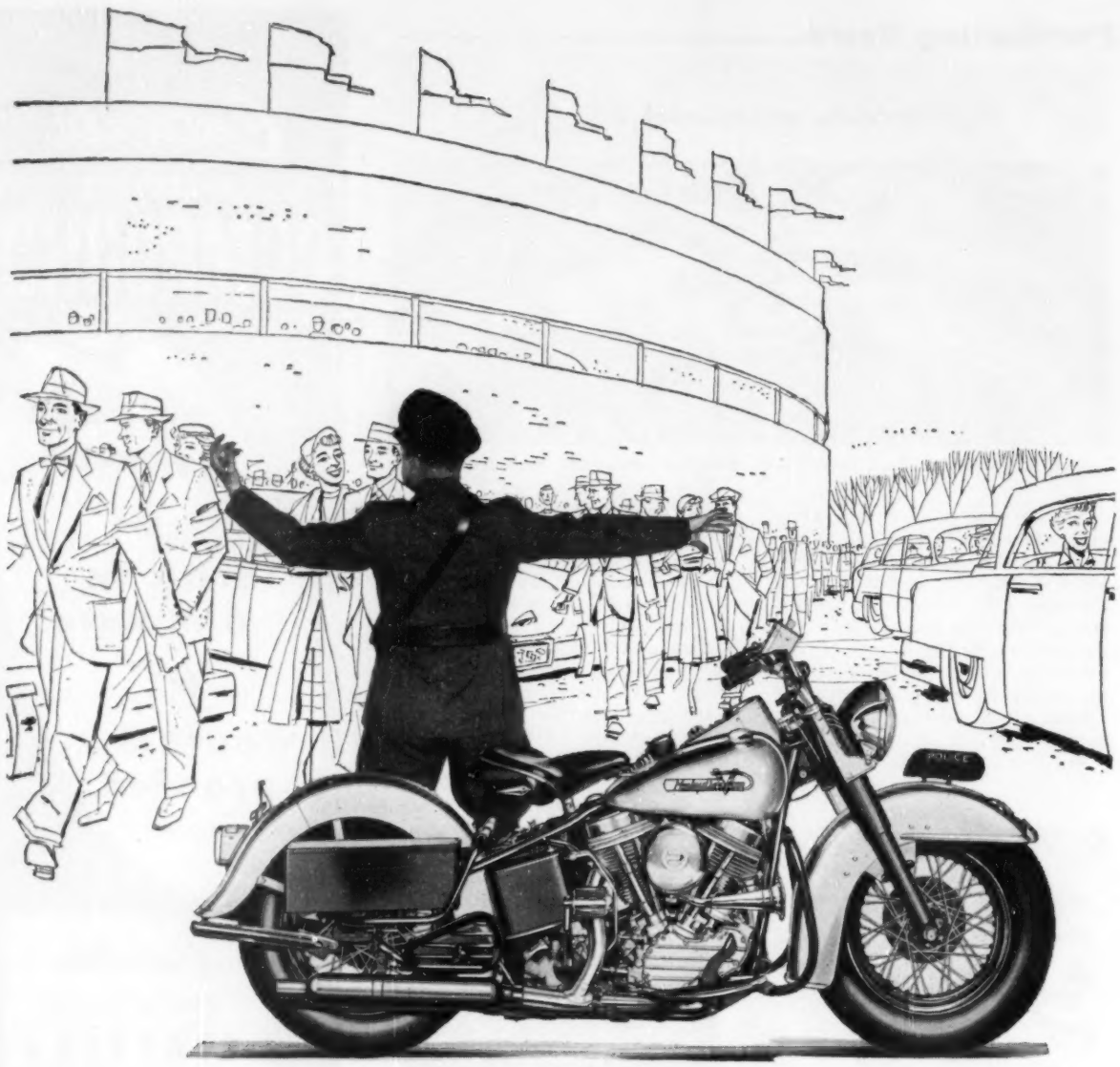
—no bead dispenser necessary

See your nearest CATAPHOTE dealer—or, write

Cataphote

CORPORATION

TOLEDO 10, OHIO



Fans get home faster in traffic directed by officers mounted on... HARLEY-DAVIDSON

CONFUSION after the game ends quickly when traffic is directed by Harley-Davidson mounted officers. And nothing gets officers to trouble spots faster than Harley-Davidson Solo machines! They cut through traffic, turn on a dime and squeeze through narrow openings . . . in short, they are the speediest means of law enforcement available.

Get the facts from your Harley-Davidson dealer today. He has your free copy of the illustrated booklet — "More Effective Police Power." Or write Harley-Davidson Motor Co., Milwaukee 1, Wis.

Pipe Firm Expands Plant Facilities

The United Concrete Pipe Corp., reports tripling the capacity of its centrifugally cast, reinforced concrete pipe manufacturing facilities at Baldwin Park, Calif. The enlarged plant is scheduled to produce 1,500 feet of pipe, in diameters ranging from 12 inches through 84 inches, in an average 8-hour shift.

According to company officials, additional facilities were built to increase the supply of reinforced concrete pipe for use in water irrigation and sewage systems, and to extend the range of centrifugal pipe sizes. The firm maintains 15 additional plants which are located throughout the West.

Kerrigan Display At Atlantic City

City officials attending the American Public Works Congress and Equipment Show at Atlantic City, September 19-22nd, are invited to visit the Kerrigan Iron Works Display at Booth B-4. The company will feature samples of its Weldforged line of grating and stair treads, lighting standards, mast arms, brackets and accessories, along with interesting literature showing installation scenes and engineering data.

Main offices of Kerrigan Iron Works, Inc., are in Nashville, Tenn. The firm has general sales offices at 274 Madison Ave., New York City.

Low-Cost Windrow Loader

Operating in northern Michigan, the new Barber-Greene windrow loader handled up to 7 yards per minute of snow mixed with sand and other anti-skid materials.

A new Barber-Greene windrow loader, Model 550, consists of a loading belt conveyor boom and mechanical feeding mechanism, mounted on a rubber-tired Model 50 John Deere tractor. It loads 4 cubic yards of earth, sand or gravel per minute and, when working with snow, will load 7 cubic yards per minute.

Windrowed material is brought onto a cleated rubber conveyor belt by means of a new power feed mechanism. Three claw-like spades reduce lumps of sod, ice, and snow to convenient size, then pull them onto the belt. These spades operate on eccentrics and rocker arms, attacking the windrow with a clawing-chipping action.

The low-cost windrow loader is designed to travel at 10 mph, and will turn completely in a radius of only 8½ feet. A discharge height of 10 feet, with an overhang of 8 feet, under the conveyor boom, permits loading without chutes or swivel heads. The 18-inch belt conveyor is carried in a light-weight channel frame braced with torque tubes.

A full description of the new Model 550 is available from the Barber-Greene Co., Aurora, Ill., or you may use the Post Card on the colored page in this section. Circle No. 707.

STOP
Corrosion
on
• GAS DISTRIBUTION SYSTEMS
• WATER LINES
• UNDERGROUND CABLES
• STORAGE TANKS
AN-SPEC
MAGNESIUM ANODES
Gas or water line leaks due to corrosion are expensive profit eaters in both repair time and replacement costs. An-Spec magnesium anodes protect your underground or submerged metal structures from industries most costly enemy—CORROSION. Call us for high quality magnesium anodes . . . experienced installation crews . . . competent engineering . . .
PIPE LINE ANODE CORPORATION
25th WEST AVENUE AND SAND SPRINGS ROAD
P. O. BOX 996 • TULSA, OKLAHOMA
Pipeline Supply Company
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858 Wilson Avenue
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Crose-Curran, Ltd.
11102 Jasper Avenue
Edmonton, Alberta
Pipeline Supply Company
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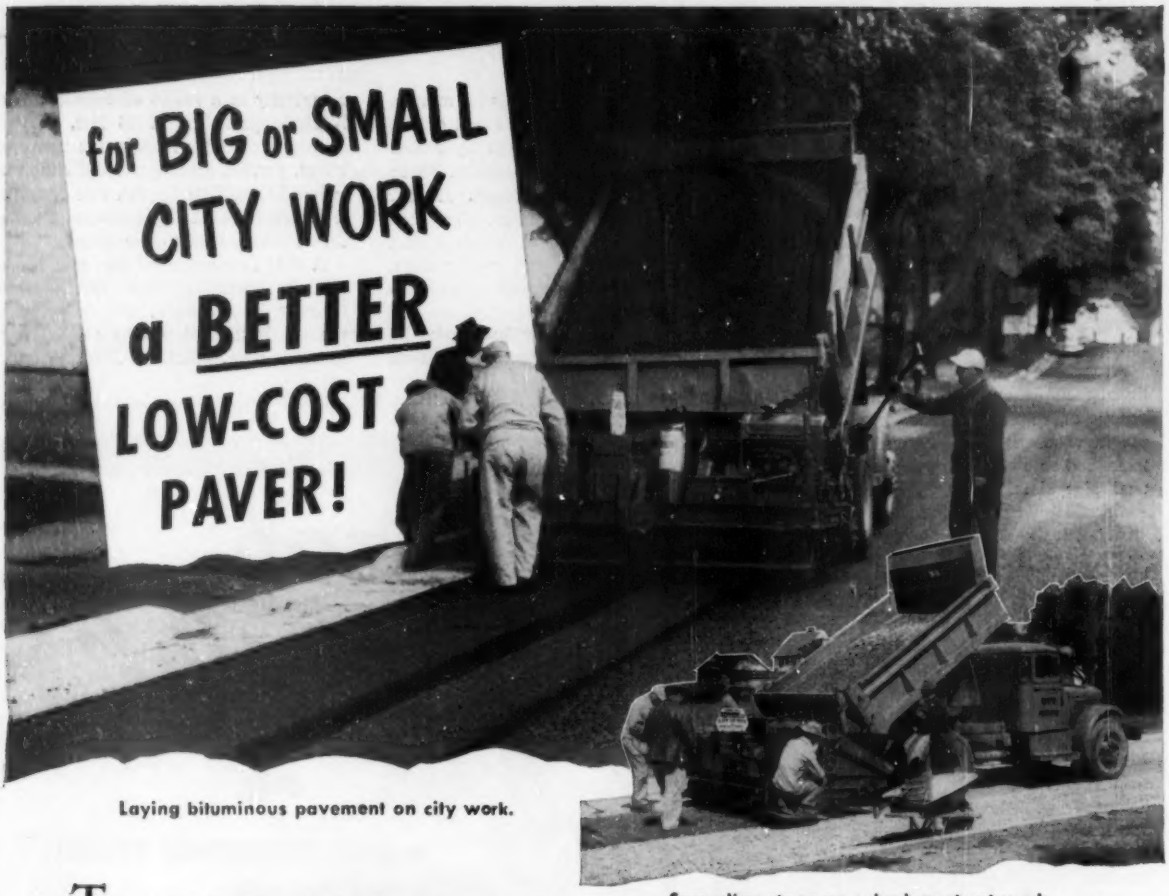
Houston, Texas
ANODE SPECIALISTS
AN-SPEC



Laying bituminous pavement on city work.

Spreading stone on suburban street work prior to laying asphalt surface.

THE ADNUN JR. Black Top Paver is the only tow-type paver that comes close to approaching the performance for accuracy of the larger, self-powered bituminous pavers specified for highway work.

The Adnun Jr. is far beyond comparison with the ordinary floating or dragged screed on wheels. It brings the city street department advantages that mean better control for meeting specifications and gives the contractor advantages that assure the delivery of a better job. Engine power makes it self-maneuvering without load. *There is no wasting of truck time to put it in position.* Rotating Breaker Bar and Oscillating Cutter Bar give better compaction, and overlapping cutter bar action helps to make a tighter joint *with a material reduction in hand work.* Advanced design, anti-friction bearings throughout, transmission gears with cut teeth and running in oil, heavy box-type frame and other features assure ease of upkeep and long service.

Adnun Jr's. are serving on street work in both large and small cities everywhere. Ask for complete details and specifications on the Adnun before you buy a tow-type rig.

If you are bidding on highway work be sure to get the full story on the many advantages of the Adnun Sr.

ADNUN JR
MODEL 8
BLACK TOP PAVER

BLAW-KNOX COMPANY
FOOTE CONSTRUCTION EQUIPMENT DIVISION
1904 State Street
Nunda, New York

BLAW-KNOX

Purchasing News

Portable Emergency Generators

The power unit receptacle is connected to the 60-ampere building receptacle located on the outer wall of the building.

Portable gasoline-powered generators provide emergency power even during line failures at Northwestern Bell Telephone Co. exchanges, Minneapolis, Minn. Whenever emergency power is required, a generator is towed to the stricken exchange, where a cable equipped with Arktite plugs connects the power unit receptacle to the 60-ampere building receptacle located on the outer wall.

Such an exchange of power units to assure uninterrupted telephone service is equally valuable as a communications aid to Civil Defense administrators, doctors, hospitals, and state and local law enforcement officials.

For further information concerning the application of Arktite plugs and receptacles, write CROUSE-HINDS CO., SYRACUSE 1, N. Y., or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 706.

Use HEAT-A-MIX to make cold stockpile material as workable as fresh hotplant mix! This compact, high-capacity pugmill and material heater has its own gasoline engine and propane or kerosene heating system. Heat-A-Mix mounts quickly and easily by hooking over the truck tailgate.

See our booth at American Public Works Assn. Show, Sept. 19-22, Atlantic City.

WYLIE MANUFACTURING CO., INC.
Bx 7086 | Zone 12 | Okla. City

New

PARCOA*

Card-Key Control Operates Parking Lots

AUTOMATICALLY...

WITHOUT ATTENDANTS

Now you can solve parking problems in your community . . . relieve congestion and provide revenue—and do it automatically, without attendants.

The amazing new PARCOA system does the job safely, economically and dependably. The simple electrical mechanism controls entrance and exit gates, actuated by card-keys issued only to legal parking customers.

Low in first cost. Easy to install. Minimum maintenance. No attendants needed. Controlled capacity with 100% collection assured. Coded card-key can be changed as desired. System pays for itself quickly.

Write for illustrated brochure and name of nearest distributor.

***Your choice of controls (coin, card, token or any combination) makes this system readily adaptable to individual requirements.**

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PARKING CORPORATION OF AMERICA

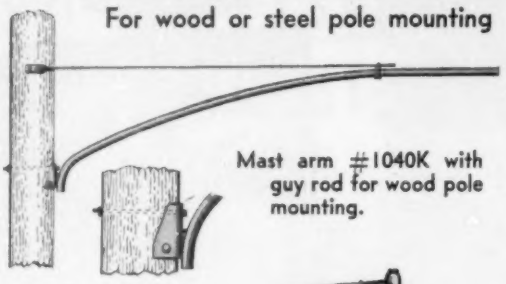
Division of Johnson Fare Box Company
Specialists in revenue collection since 1909

33 No. La Salle Street, Chicago 2, Illinois

Sales and Service Offices in Principal Cities

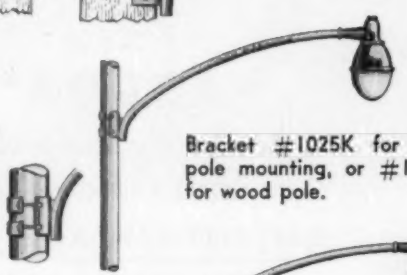
KERRIGAN *Weldforged*
Steel Brackets & Mast Arms

For Economy & Beauty

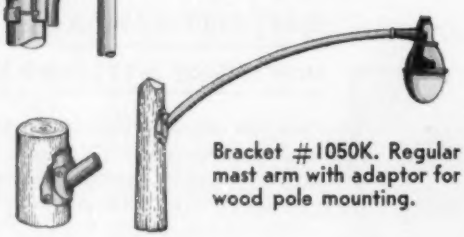


For wood or steel pole mounting

Mast arm #1040K with guy rod for wood pole mounting.



Bracket #1025K for steel pole mounting, or #1035K for wood pole.



Bracket #1050K. Regular mast arm with adaptor for wood pole mounting.

Kerrigan's complete line of brackets and mast arms are carefully engineered for easy installation and wiring. They meet all I.E.S. street lighting recommendations. So, take advantage of your wood poles now in place and brighten up your city or town NOW!

Let us help you

solve your city's lighting problems. Send for our FREE catalog containing engineering data. It shows how simple installation really is.

KERRIGAN IRON WORKS, INC.
Nashville, Tennessee
Gen'l. Sales Office — 274 Madison Ave. — N.Y.C.

Public Property *PROTECTION* is our business

For your protection Stewart produces chain link wire and iron picket fence; wire mesh partitions; wire window guards; steel folding gates. Also flagpoles; settees; bronze plaques and other metal specialties. Write for catalogs. Please mention products in which you are especially interested.

THE STEWART IRON WORKS CO., INC.
2121 Stewart Block, Cincinnati 1, Ohio
Experts in Metal Fabrications since 1886

Stewart IRON and WIRE FENCES

"SIGNS OF PROGRESS"

Pittsburgh's Golden Triangle, already famous, is being further beautified. The march of civic progress in an industrial city is pointed out by easy-to-read, enduring ***"FERRO"*** street signs.

In many interesting locations you'll find ***FERRO*** signs . . . visible day or night; permanent porcelain enamel fused on finest steel.

On any street, road or highway, ***FERRO is the sign of good government.*** For full details, write:

FERRO ENAMELING CO.
1100 Fifty-seventh Avenue, Oakland 21, California

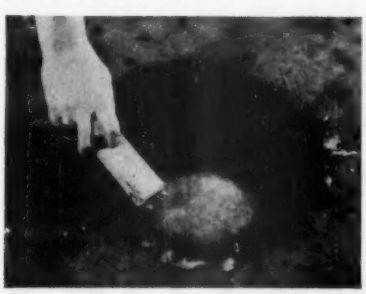
For Mounting Overhead Traffic Signals

Cities planning the use of overhead traffic signals are offered the AHB-1, a new turret mounting device that reduces installation costs by mounting multiple directional signs on a single span wire. Signs may be positioned at any angle on the span wire simply by loosening four bolts, setting the proper angle, and tightening.

A standard AHB-1 installation often requires only a single span wire suspended from existing corner poles. The bracket is available as standard equipment on all Perma-Lite signs.

For detailed information, write ELWOOD WILES CO., PORTLAND, ORE., or you may use the Post Card on the colored page in this section. Circle No. 713.

Preparations for Sealing A Concrete Floor



"Boiling out" process takes place as Surfa-Etch makes contact with the alkali.

A safe, easy way to prepare concrete and cement floors and masonry surfaces for sealing and refinishing is to apply Surfa-Etch, a new liquid etching developed by the RUST-OLEUM CORP., 2511 OAKTON ST., EVANSTON, ILL.

Surfa-Etch is simple to apply without special clothes, goggles, or gloves. It is fume- and odor-free, non-inflammable, and won't damage metal surfaces. Equally important, Surfa-Etch cleans, etches, and neutralizes the concrete and cement surface in one application, cleaning the pores of all oils, greases, dirt and accumulated soap film, and neutralizing the alkalis as well.

Before applying Surfa-Etch, scrape the surface, removing dirt, oil and grease. Then brush or spray on the solution, scrubbing it into the surface with a brush or electric floor machine. Before applying the sealer, rinse the surface with clear, fresh water and allow it to dry. A good sealer to use is Rust-Oleum Clear-Sele, followed by a finish coat of Rust-Oleum floor and deck coatings.

Rust-Oleum Surfa-Etch is fully described in literature from the manufacturer. Write directly, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 709.

HYDRAULICALLY OPERATED VALVES

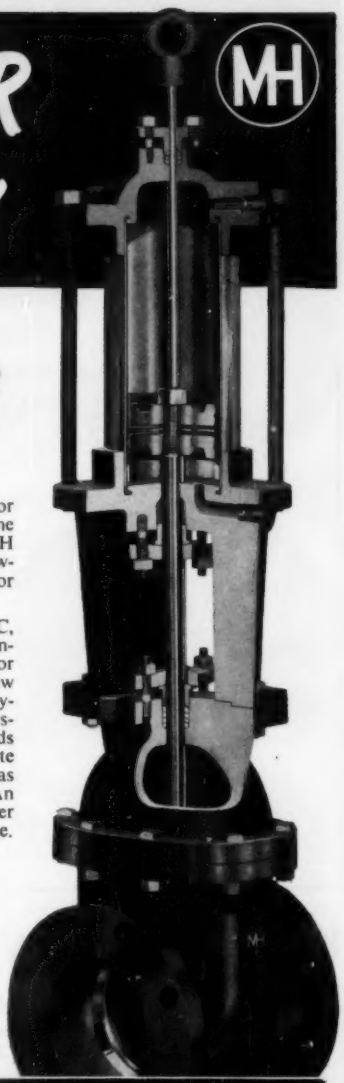
Put WATER To WORK

MH

SEAMLESS BRASS CYLINDER OR BRASS LINED

For frequent operation, remote control or for inaccessible valves, you may use your pipe line water pressure for opening and closing M & H hydraulically operated valves. If desired, however, cylinders operate equally well using oil or air pressure.

All M & H Gate Valves, Classes A, B and C, may be ordered equipped with hydraulic cylinders—brass tube cylinders as illustrated, or brass-lined cast iron cylinders. Outside screw and yoke can be installed to operate the hydraulic valve manually in event operating pressure fails. A bronze tail rod which extends through the top of the cylinder cover to indicate the position of the gates may also be used as a pull rod to operate the gate, if necessary. An adjustable stop may be installed on the cylinder cover to control the degree of opening of the gate.

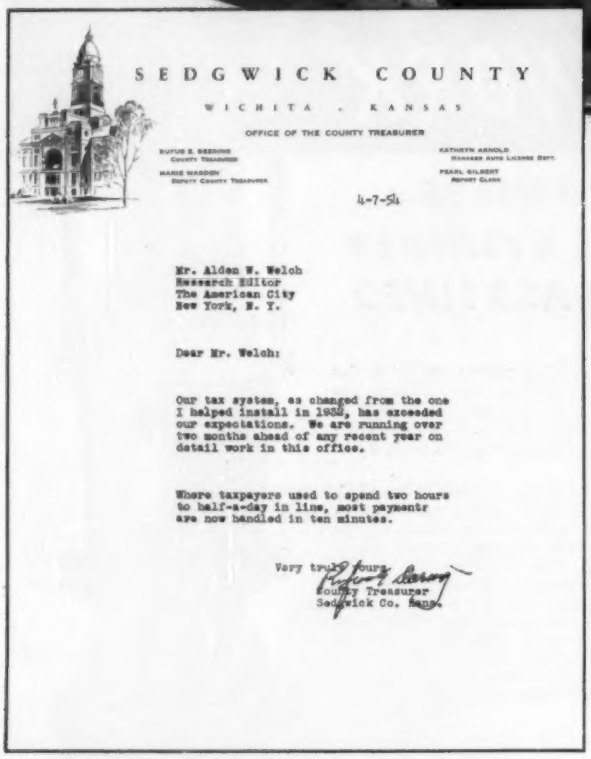


The size of the cylinder depends on the size of the valve, water pressure available for hydraulic operation, and water pressure against the gates. For complete information, write or wire M & H VALVE AND FITTINGS COMPANY, Anniston, Alabama.

M&H PRODUCTS FOR WATER WORKS • FILTER PLANTS INDUSTRY • SEWAGE DISPOSAL AND FIRE PROTECTION

Underwood Sundstrand

Accounting Machines in Sedgwick County, Kansas



SEDGWICK COUNTY

WICHITA . KANSAS

OFFICE OF THE COUNTY TREASURER

RUFUS E. DEEMING
County Treasurer

MARIE WADDEN
Deputy County Treasurer

KATHRYN ARNOLD
Manager Auto License Dept.

PEARL GILBERT
Report Clerk

4-7-54

Mr. Alden W. Welch
Research Editor
The American City
New York, N. Y.

Dear Mr. Welch:

Our tax system, as changed from the one I helped install in 1932, has exceeded our expectations. We are running over two months ahead of any recent year on detail work in this office.

Where taxpayers used to spend two hours to half-a-day in line, most payments are now handled in ten minutes.

Very truly yours,
County Treasurer
Sedgwick Co. Kans.

"Two months ahead on office detail"

Let us send you the particulars.

UNDERWOOD CORPORATION

Accounting Machines . . . Typewriters . . . Adding Machines . . . Ribbons, Carbon Papers and other Supplies
Punched Card Equipment . . . Electronic Computers

One Park Avenue UNDERWOOD **New York 16, N. Y.**

Sales and Service Everywhere

Purchasing News

New Police Patrol Car Doubles as Ambulance

In smaller communities, police departments can use this combination Studebaker unit as an ambulance, a police emergency vehicle, and a patrol car. In busy metropolitan areas, it makes a handy auxiliary emergency auto.

Designed for comfortable traveling at high speeds, the Studebaker combination vehicle has ample room to carry all of the special equipment required for accident investigation work, and for emergency treatment of ill or injured persons. In addition, there is enough space to handle a standard ambulance cot.

A variety of emergency units can be installed in the new Studebaker. A two-way radio can be placed over the transmission housing and operated from the instrument panel, and mounting plates may be placed in numerous locations for oxygen tanks, rescue tackle, and auxiliary flood-lighting equipment.

The ambulance is available in four models: DeLuxe Champion, Regal Champion, DeLuxe Commander, and Regal Commander. Get full details from the STUDEBAKER CORP., SOUTH BEND 27, IND., or you may use the Post Card on the colored page in this section. Circle No. 723.

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THE J. M. CLEMINSHAW CO.

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Nationally Recognized for
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Since 1923

An Authoritative Professional Service
Universally Accepted by Assessing Officers
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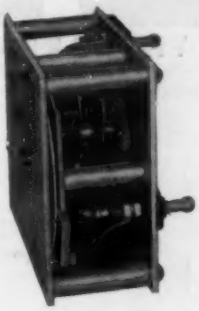
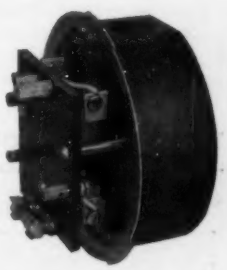
High Point, N. C.	100 So. Main St.,	Tel. 8957
Des Moines, Iowa	Savings & Loan Bldg.	Tel. 3-5154
Milwaukee, Wisc.	2014 Sunset Court	Tel. Spring 4-8934

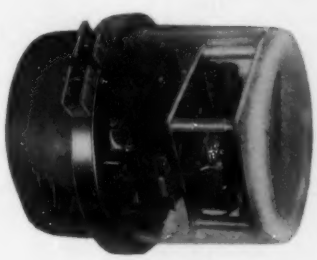
TIME-O-MATIC FLASHERS JACK MOUNTED



Single or two circuits with or without built-in eliminators. Available with standard meter case or can be supplied separately with Jack mounting panel.

SPECIFY DEPENDABLE TIME-O-MATIC





A SIGN OF GOOD CONTROL

•

TIME-O-MATIC CO.

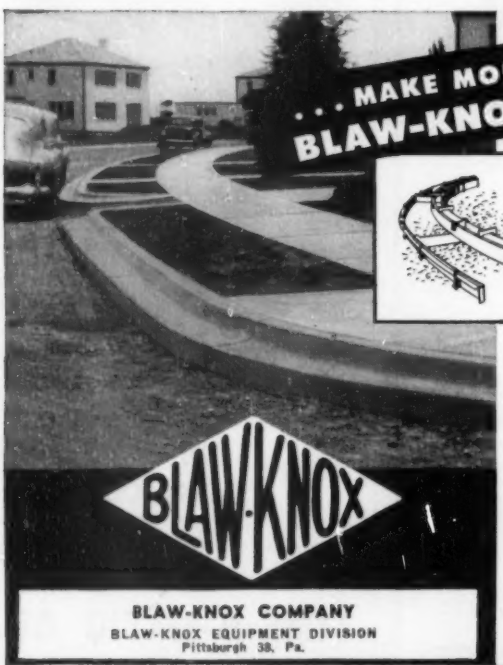
1106 Bahls Street
Danville, Illinois

Seagrave

THE GREATEST NAME IN FIRE APPARATUS

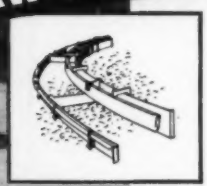
Why is it you always get more for your money when you specify Seagrave? The answer is easy. Engines, frames, bodies, cabs, pumps, ladders and other important parts are Seagrave design and manufacture. They are made to operate as a unit to give your city the most dependable fire apparatus it is possible to produce.

THE SEAGRAVE CORPORATION—COLUMBUS, OHIO • BICKLE-SEAGRAVE, LTD.—WOODSTOCK, ONT.



. . . MAKE MORE PROFIT ON JOBS LIKE THIS WITH

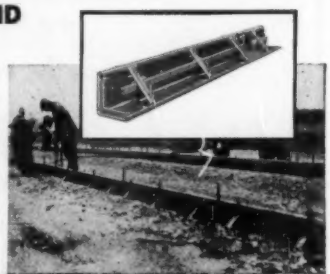
BLAW-KNOX CURB AND GUTTER FORMS



WHATEVER kind of street paving work you have, from curved or serpentine shapes to simple straight work, Blaw-Knox Steel Curb and Gutter Forms make money on every job. Easy to set and strip, they complete the job faster and well within your estimate. Costly hand finishing is eliminated. You not only save on materials and carpentry labor, but finished jobs have a perfection impossible to achieve with wood forms. The same forms can be used over and over for a wide variety of work. Ask your Blaw-Knox distributor about the "Complete Package" of Steel Forms for low-cost construction of concrete curb, curb and gutter, integral curb and sidewalk.

BLAW-KNOX ROAD AND AIRPORT FORMS

You can be sure of more rapid form setting, *always true to line and grade,* with Blaw-Knox Heavy-Duty, Self-Aligning Steel Forms. Available in heights of 8" or more, or in Dreadnaught Forms when less than 8" height is required. Heavy-Duty 12" x12" Forms and Airport Paving Forms in sizes above 12" are designed especially to meet the thicker paving slab requirements of modern airports.



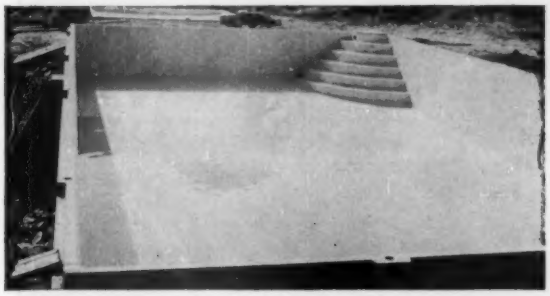
BLAW-KNOX

BLAW-KNOX COMPANY
BLAW-KNOX EQUIPMENT DIVISION
Pittsburgh 38, Pa.

ASK ABOUT THE BLAW-KNOX *"Complete Package"* OF CONCRETE PAVING

Pre-Cast Walls Speed Swimming Pool Construction

With one pre-cast side bolted along the bottom of the pool and at the buttress, the shallow-end panel is set in place.



Construction of this 20 x 40-foot pool took only eight days. Note the smoothness of the pre-cast walls which have been painted with a chlorinated rubber based paint.

With the introduction of pre-cast walls developed by the Amcrete Corp., your community can construct a first-rate steel-reinforced concrete swimming pool in one-quarter the time needed with on-the-job forms, and at a savings of "thousands of dollars." Here is how it's done:

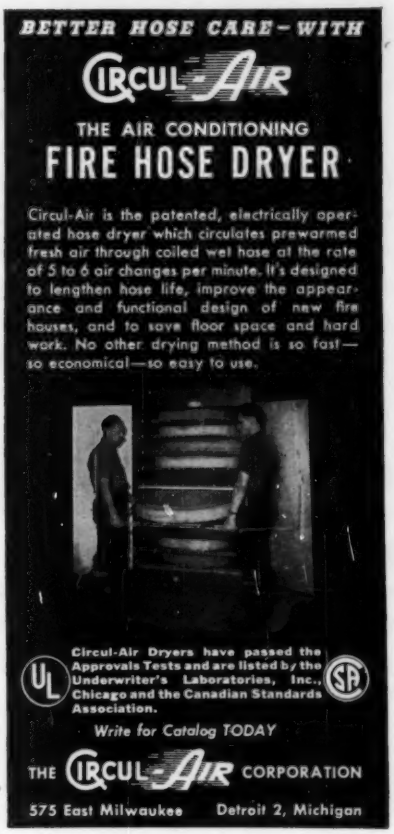
The building of an Amcrete pool begins with the pouring of a steel-reinforced concrete floor. A keyway is left around the base of this floor, and slight platforms are constructed at 20-foot intervals along walls over 20 feet long. A crane is used to swing in the Amcrete panels, complete with chromed bronze fittings and, hours later, the walls are bolted together, the sealers are in place, and the grouting completed. The only remaining work consists of connecting the plumbing, painting the pool, backfilling, and the installation of equipment.

Amcrete pre-cast walls have a glassy-smooth finish that won't crack, chip or flake, and they are guaranteed for five years. The panels are pre-cast by the Marietta Concrete Co., Marietta, Ohio, and fittings and equipment for the Amcrete pool are furnished by the American Pool Co., a subsidiary of the Amcrete Corp.

Detailed information on the advantages of constructing an Amcrete pool in your community is available from the AMERICAN POOL CO., BRIARCLIFF, N. Y., or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 736.

New!
PORTABLE POWER
MODEL 4S MGW4
5 K.W.
KATOLIGHT
POWER PLANTS
Wheel Mounted
for use anywhere!
Whatever your Municipal Department's needs, you'll find a KATOLIGHT Generating Unit, Continuous or Standby Plant, available. Choice of air or water cooled, well known make gasoline engines. Up to 50 KW. Also Motor Generators Sets, High Frequency Generators, Converters, Frequency Changers and Independent Generators to 300 KW.
Write Regarding Your Requirements Today!
KATOLIGHT CORPORATION
Box 491- 25 Mankato, Minnesota

NEW PORTABLE POWER SAW SPEEDS CUTS IN TIGHT PLACES
On 2", 4", 6" & 8"
Cast Iron and Steel Pipe
WACHS GUILLOTINE SAW FACTS—
● Cuts 6" cast iron pipe in 4 minutes
● Cuts 6" steel pipe in 8 minutes
● Weight 120 pounds ● Width 22¼"
● Height 28" ● Depth 12"
● Set up time, less than one minute
● Power — electric or air motor
● For further information write to:
THE E. H. WACHS COMPANY
1525 N. Dayton Street • Chicago 22, Illinois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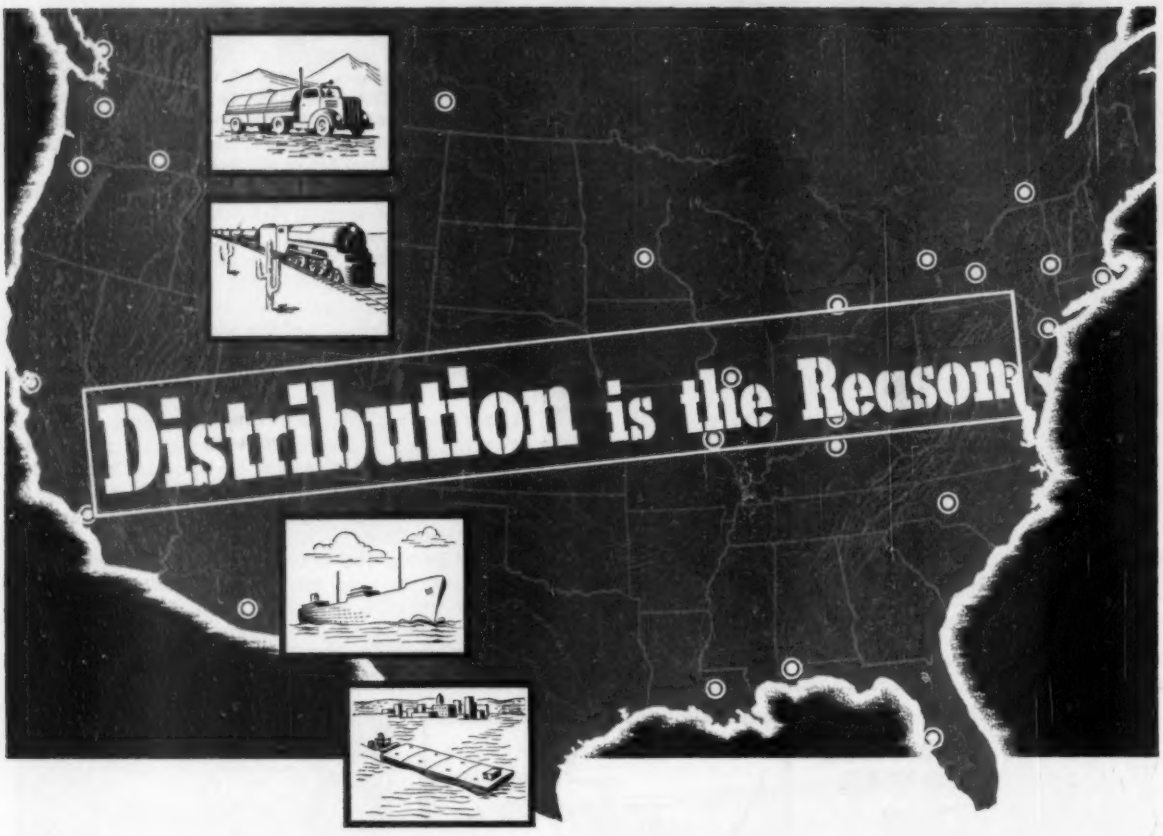
THE AIR CONDITIONING
FIRE HOSE DRYER
Circul-Air is the patented, electrically operated hose dryer which circulates prewarmed fresh air through coiled wet hose at the rate of 5 to 6 air changes per minute. It's designed to lengthen hose life, improve the appearance and functional design of new fire houses, and to save floor space and hard work. No other drying method is so fast—so economical—so easy to use.
Circul-Air Dryers have passed the Approvals Tests and are listed by the Underwriter's Laboratories, Inc., Chicago and the Canadian Standards Association.
Write for Catalog TODAY
THE CIRCUL-AIR CORPORATION
575 East Milwaukee Detroit 2, Michigan

BITUMULS® Gains in Nationwide Acceptance



FROM COAST-TO-COAST throughout this country, an ever-increasing number of Roadbuilders are specifying Bitumuls for all types of surfacing. These men specify Bitumuls for two good reasons:

1. They know that they can get Bitumuls *when and where they need it,* in the quantity and grade required.
2. They can depend on uniform high quality asphalt emulsions when they specify Bitumuls.

Back of this ready availability of Bitumuls is a system of distribution that is without parallel in the industry. From our many refineries and plants, Bitumuls moves in steady stream — by truck, rail, boat, or by barge — to local storage-points across the nation. Here it is held in readiness for immediate job-delivery or for pick-up by the Roadbuilder.

National distribution is, of course, only one of the reasons why more surfacing is being done with Bitumuls. Cold-applied emulsified asphalt in this modern, convenient form offers important savings in time, labor and equipment. New illustrated booklets, available on request, give full technical information and methods of application. Write for your copies today.

AMERICAN Bitumuls & Asphalt COMPANY

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E. Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md. Mobile, Ala. Columbus 15, Ohio Tucson, Ariz. Seattle, Wash. Baton Rouge 2, La. St. Louis 17, Mo. Inglewood, Calif. Oakland 1, Calif. Portland 7, Ore. Washington 5, D. C. San Juan 23, P. R.

Purchasing

Gar Wood Moves Sales Offices

Domestic and export sales of the shovels, cranes, Buckeye ditchers, spreaders, finegraders, and Hi-Way wideners offered by Gar Wood Industries, Inc., are now being handled from the firm's executive offices in Wayne, Mich., reports R. S. Jay, product sales manager. Gar Wood sales functions were previously located at the company's Findlay (Ohio) Plant.

Barrett Celebrates 100th Anniversary

When Samuel E. Barrett founded Barrett, Dow & Co., 100 years ago, transforming the roofing business from a seasonal enterprise into a year-round operation, he began an organization that was in the course of a century to become a leader in the chemical field. Today, as the BARRETT DIV., ALLIED CHEMICAL & DYE CORP., the firm is not only the home of the Barrett "Specification" roof but, in addition, boasts such products as "Tarvia" road tar, creosote oil wood preservative, and Barrett protective coatings.

LEADITE

The Pioneer Self-Caulking Material for C.I. Pipe

Thousands of miles are—

Jointed with LEADITE *for Satisfaction and Long Life*

because Leadite makes a good, tight joint that improves with age . . . and in addition, saves on installation costs. Write for Literature.

THE LEADITE COMPANY
Girard Trust Co., Bldg., Philadelphia 2, Pa.

No Caulking

Have you investigated the **LOAD LUGGER*** for bulk collection and disposal of refuse?

COLLECTING

Patented containers are low, fill easily from three sides and the top, fill all the way, are water-tight halfway up, shut tight against flies and odors, can be locked against "free loaders."

PICKING UP

With safe load distribution, powerful hydraulic arms lift container to flat deck of LOAD LUGGER (easily mounted on any standard truck chassis and operated by the driver from his cab).

HAULING

With load well forward and no clumsy superstructure or excess weight, the cleanly designed LOAD LUGGER carries more pay load on a given truck chassis than any comparable equipment.

DISPOSING

Controlled vertical tilt and full discharge door, spring-loaded to open and close automatically, afford complete and safe dumping of all contents (no troublesome or leaky bottom opening).

Two LOAD LUGGER series are available for bulk collection and disposal of refuse: a 9000-pound pay load model with 6, 8 or 10 cubic-yard containers, and a 12000-pound pay load model with 8, 10 or 12 cubic-yard containers. Other LOAD LUGGER models carry maximum loads of 4500 to 26000 pounds.

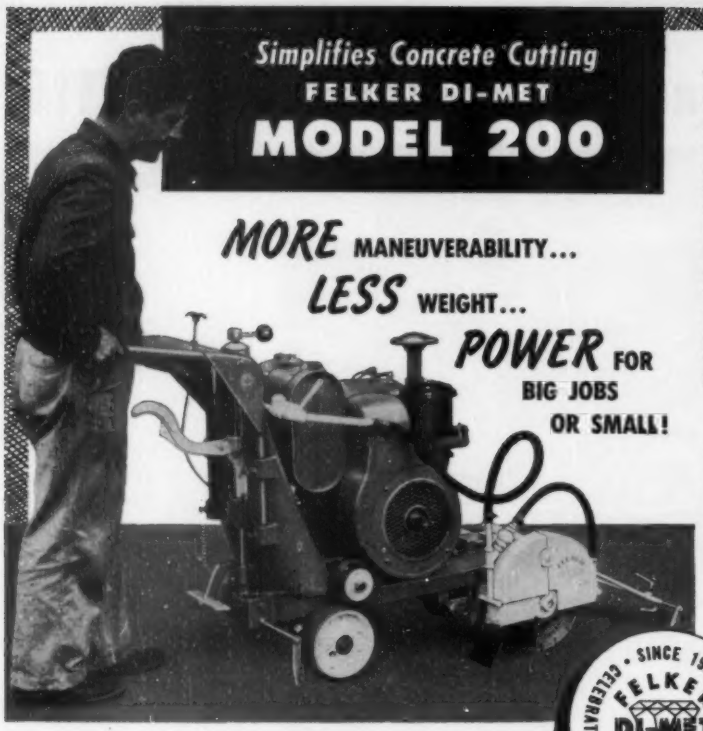
The LOAD LUGGER SYSTEM lets one truck and driver do the work of many by continually picking up, hauling (then dumping, spreading, pouring or delivering the load) and returning a number of LOAD LUGGER containers or pallets to strategic locations for filling at operational convenience.

* registered trade mark of and manufactured by **BROOKS EQUIPMENT & MFG. CO.**, KNOXVILLE 21, TENNESSEE. Used all over the world. Write for catalog and price list.

Simplifies Concrete Cutting

FELKER DI-MET

MODEL 200



MORE MANEUVERABILITY...

LESS WEIGHT...

POWER FOR BIG JOBS OR SMALL!

This NEW Felker DI-MET CONCRETE CUTTER meets *all* cutting requirements at LOW COST! Takes deep cuts and covers the footage of *big* machines, yet handles as easy as a baby buggy. Light weight means more maneuverability on close-ups, easier loading for fast transportation. Holds straight and true on long stretches. Uses economical 10" or 12" blade sizes. Cuts up to 3¾" deep with 12" blade. 13.5 h.p. Wisconsin engine provides ample power *even for 14" blades* and deeper cuts (by equipping with special blade guard). Hydraulic lift raises blade from cut, velvet-smooth hydraulic retardant eases blade into concrete—saves wear, increases blade life.

ADD ACCESSORIES AS YOU NEED THEM!

This new DI-MET Model 200 is available as a BASIC UNIT or may be purchased with additional accessories. POWER DRIVE and COOLANT PUMP ASSEMBLIES can be field installed. STARTER, GENERATOR and BATTERY must be ordered with the ENGINE. Choose what you *need*, buy what you *want!*

Many other exclusive features —ask for circular!

Made by the *only* manufacturer building both CONCRETE CUTTING MACHINES AND DIAMOND WHEELS... the winning combination that means *more* footage at *less* cost!

CELEBRATING OUR 30th ANNIVERSARY • SINCE 1924 • FELKER DI-MET

FELKER MANUFACTURING CO.

TORRANCE • CALIFORNIA

World's Largest Manufacturer of Diamond Abrasive Cut-off Wheels and Machines

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Park cars • trucks busses • all types vehicles

The HARRIS-BARRIER Way

SAVE ON

- Space
- Time
- Money
- Installation
- Maintenance
- Replacement

Park 1 Car to 10,000 Cars Quickly, Efficiently!

HAR-BAR

HARRIS-BARRIER, INC.

Parking System Engineers • 3301 N. Tibbs • Indianapolis 22, Indiana

Large corporation parks cars compactly, smoothly with Harris-Barriers.

MAIL COUPON TODAY

Give dimensions and shape of your parking area. Harris-Barrier engineers will prepare *your* engineering kit without obligation!

Name_____

Title_____

Company_____

Address_____

City State

Area Description:

Width____ Length____ Shape____

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

PROMPT SHIPMENT

Inquiries and orders solicited.

NORTHERN GRAVEL COMPANY

Muscatine, Iowa

P. O. Box No. 307 Phone: 4261

Improved Parking Meter Collection

THE LOOMIS ARMORED CAR SERVICE, INC., has designed a new coin receptacle for its parking meter collection service at Eugene, Ore., and Victoria, B. C.

Coins from each meter are dumped into a hopper and pass through a one-way valve into a detachable pouch below. This pouch, secured by a lock, is a safe repository for loose coin.

Located in Seattle, Wash., The Loomis Co. operates in many cities in Washington, Oregon, California, British Columbia and Alberta.

Simplifies Overhead Maintenance

The flexible arm of the new Hydro Sky-Worker permits fast, easy access to aerial fixtures.

How many of your city's installation and maintenance jobs involve getting men and materials aloft to handle high or otherwise inaccessible areas? The Hydro Sky-Worker makes such duties simple and safe.

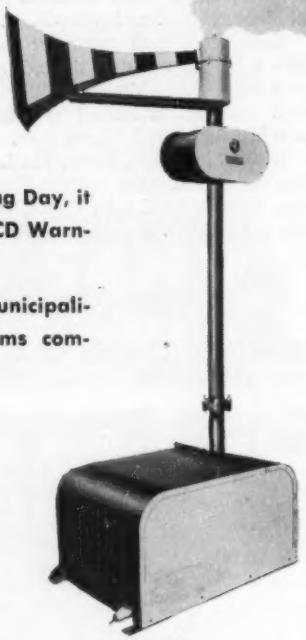
The Hydro Sky-Worker is a hydraulically operated articulated boom that carries either one or two crow's nests. These nests have controls that enable workmen to reach any point in space within the upper half of a sphere whose radius is 26 feet from the top of its mooring. The unit reaches a full working height of 40 feet when mounted on a truck chassis of 1½ tons or more.

Available from the MAXWELL EQUIPMENT CO., FORD ST., MILFORD, CONN., the Sky-Worker is equally valuable in building construction and in rescue work. It is powered by a conventional power take-off from the truck engine, rotates a full 360°, and can easily carry a working load of some 500 pounds.

For additional data address the manufacturer directly, or you may use the Post Card on the colored page in this section. Circle No. 718.

Get a
Sharpsville
Challenger
to suit your
local needs
HERE IS a version of the Challenger built to the requirements of Richland Township . . . a 1500-gallon tanker with a two-stage front mount pump. These Challengers are designed and custom-built to carry whatever you need. More and more, speedy, efficient Sharpsville Challengers are protecting communities from fire losses. Write, giving us your requirements.
RICHLAND TWP. VOL. FIRE DEPT.
Sharpsville
STEEL FABRICATORS, Inc.
Sharpsville, Pa.
Established 1860
Incorporated 1907
Builders of Service, Crash and Ladder Trucks • Volume and High Pressure Pumpers • Squad and Emergency Cars • Storage Tanks

FLAG DAY?



June 14th was more than Flag Day, it was EVALUATION DAY for CD Warning systems.

Were you one of the few municipalities who found their systems completely adequate?

No one can be severely criticised for deficiencies that showed up in the Flag Day tests. A complete warning system, like Rome, cannot be built in a day. Criticism will be leveled at you from all angles if you have not evaluated those test results and taken steps to correct the deficiencies.

Your time limit for the 'real thing' is not known; you cannot justify further postponement. Each passing day brings you closer to the time when you *must* act, when your system *must* function with 100% coverage. Call on FEDERAL for assistance with your CD warning system.

CD

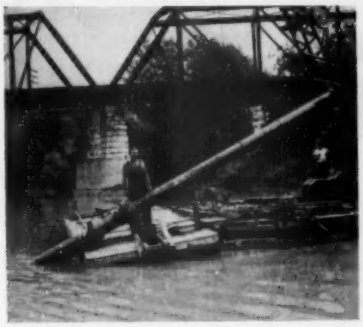
FEDERAL SIGN and SIGNAL CORPORATION

Formerly: Federal Enterprises, Inc.

8756 SOUTH STATE STREET CHICAGO 19, ILLINOIS

Purchasing

Easier Pipeline River Crossings



Workmen assemble the new long-length Clow ball-and-socket pipe for a river crossing in Defiance, Ohio.

Much of the headache accompanying a water pipe-line river crossing disappears when the newly designed Clow ball-and-socket river crossing pipe is used. This pipe has many distinctive features that overcome problems formerly presented by this type of crossing.

For example, the ball-and-socket joint itself has fewer parts than any previously offered. Workmen find that it "makes up" easily. The joint is also designed to provide a full 15° free turning deflection without reducing the internal opening area, even at the point of full deflection.

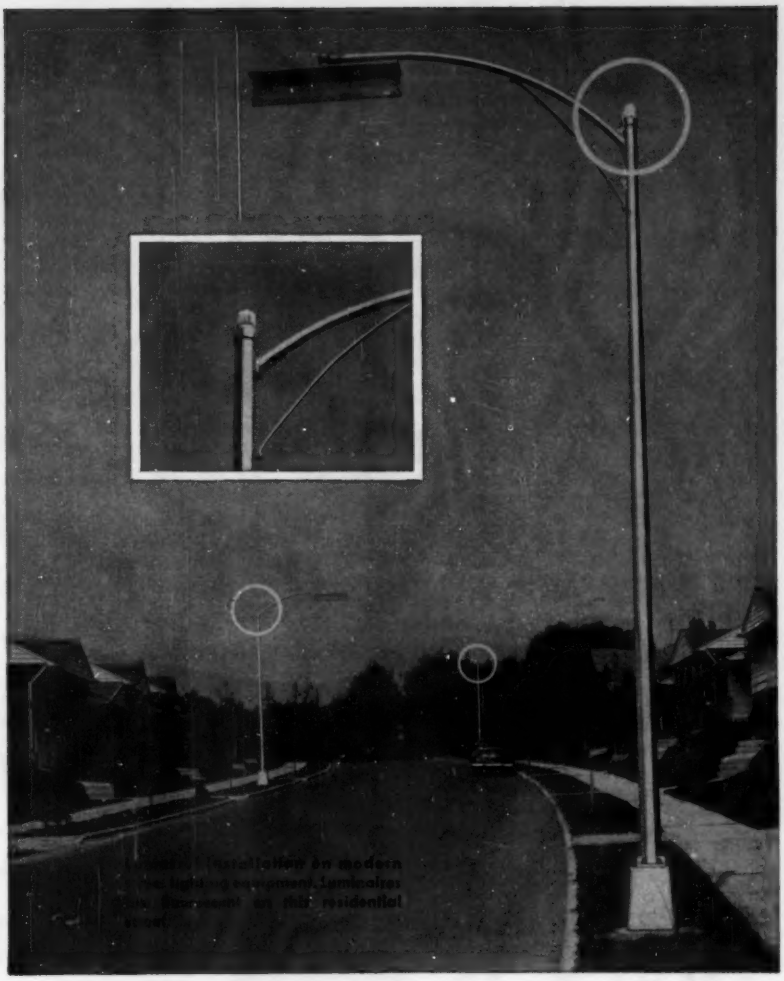
The pipe is supplied in longer lengths, 18½ feet, thus reducing the number of joints to assemble, lowering the man-hours required, and cutting the time required to complete a crossing installation.

JAMES B. CLOW & SONS, 201-299 N. TALMAN AVE., CHICAGO 80, ILL., will supply a new brochure describing this new river-crossing pipe in detail. For your copy of *Form 5-1-54*, write directly to the company, or you may use the Post Card on the colored page in this section. Circle No. 711.

New Mexican Plant To Make Deepwell Pumps

The Byron Jackson Co., S. A., a subsidiary of the Byron Jackson Co., Los Angeles, Calif., is currently manufacturing deep well turbine pumps, according to E. S. Dulin, president of the parent firm. The pumps are being made in a recently acquired plant just outside Mexico City.

The Mexican Corporation, reports Mr. Dulin, will employ only Mexican labor. All available materials and supplies will be obtained in Mexico.



LUMATROL® omni-directional

photoelectric light switch.....

- ...the new, simple method of *fully* automatic light control
- ...the low-cost, plug-in unit that's easy to install, easy to maintain
- ...the light switch that stays on the job year after year regardless of weather
- ...the small-size switch that's easily adaptable to any pole or luminaire, *PRODUCING WELCOME ECONOMIES WHEREVER INSTALLED*
- ...LUMATROL RATES FIRST ON ALL TWELVE SPECIFICATIONS NORMALLY APPLIED TO THIS TYPE CONTROL...

WRITE TODAY FOR TECHNICAL BULLETIN.

micro balancing

INCORPORATED

GARDEN CITY PARK, L. I., NEW YORK

® Trade Mark Reg. U.S. Pat. Off.

SAVES $ LOTS OF $

$ . . . on pipe runs under streets, highways, pavement, gardens, etc.

REG. U. S. PAT. OFF.

HYDRAUGER*

HY-25C

OPEN HOLE

AVOID TIME WASTE

Hydrauger is a modern, time-saving way to install underground pipe . . . avoids trenching, backfilling, pavement cutting, etc.

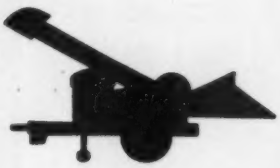
2" to 24" BITS and REAMERS

HYDRAUGER CORP. Ltd.
681 Market Street
San Francisco, California

*Earth Boring Tool

ASK FOR BOOKLET . . . NO OBLIGATION

EASY MAINTENANCE



There are no complicated adjustments on an Asplundh Chipper nor does the operator have to be a master mechanic equipped with special tools.

For complete details, write to us at 507 York Road, Jenkintown, Pa.

ASPLUNDH CHIPPER CO.

EASTERN METAL
1 Source of Supply
For ALL Metal Signs

"Iron Cop"

You get these Advantages:

Immediate Delivery — over 1200 Types in Stock
Legible Lettering — Modern Designs
Official Legends — Approved by Dept. of Commerce
Long Lasting — Double baked enamel
Economy — Low cost; easy to install and maintain

Protect Your Children with the Eastern Metal "Iron Cop" — 6-ft. 4" Policeman silhouette in an official blue uniform mounted on a stable iron base; rolls into position easily by a school boy.

Eastern "A" Stand

Complete line of Highway Signs — reflectorized and plain; also heavy cast aluminum street signs, U-Type steel posts, and durable stanchions.

Send for Illustrated Folder and Price List.

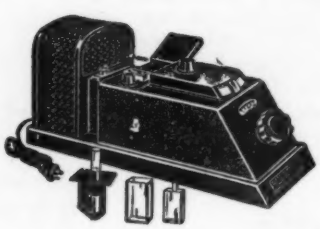
Eastern "A" Stand Won't Blow Over
Folds and Locks in Place
Positive Protection to City Workmen

INDUSTRIAL • SAFETY
EM SIGNS
UTILITY • TRAFFIC

EASTERN METAL of Elmira, Inc. Elmira Hts. 1, N. Y.

KLETT SUMMERSON
ELECTRIC PHOTOMETER

Adaptable for Use in Water Analysis



Can be used for any determination in which color or turbidity can be developed in proportion to substance to be determined.

KLETT MANUFACTURING CO.
179 East 87th Street New York, N. Y.

Fighting Fires with Cold Steam

When one thinks of high-pressure fog for fire fighting, he often thinks of John Bean. For an understanding of the theory, practice, and equipment involved, there is a portfolio of material that covers the subject. The following is a resume of that material:

The theory exists that 9 out of 10 fires do not demand for their extinguishment the amount of water thrown by a 1-inch booster stream. One gallon of water converted into high-pressure fog is the equal, in action, of 10 gallons in a stream. The fog cools, isolates, and smothers the fire. The economy lies not only in conservation of water, but in reduced water damage as well.

During World War II, John Bean developed and built several hundred high-pressure, fog-fire-fighting units for the Army, Navy and Marine Corps. The John Bean high-pressure pump requires only 35 hp to develop a pump pressure of 850 psi and a nozzle pressure of 650 psi, and an output of 60 gpm.

The latest Bean fighter incorporates high-pressure and a volume pump. It furnishes two lines of fog and three or four streams. Depending on the size of the engine, the volume pump delivers 500, 600 or 750 gpm at 150 pounds pump pressure. Though the truck carries 500 gallons of water, it can draft from a well or pond and refill the tank.

John Bean maintains its own fire department and has answered as many as 200 calls in one year. The company also offers a fire school for training the men who will use its trucks.

For the folio of literature, write JOHN BEAN DIV. OF FOOD MACHINERY & CHEMICAL CORP., LANSING, MICH., or you may use the Post Card on the colored page in this section. Circle No. 710.

Du Mont Emergency Radio For All Services

With the current announcement of a unit for the 144-174 megacycle band, Du Mont's customers now have a series of three mobile transmitter-receiver systems covering the complete range of emergency service frequencies and commercial mobile 2-way bands. The two other mobile systems are the Type MCA-101-A for the 25-54 megacycle bands, and the Type MCA-401-A for the 450-470 megacycle bands.

The range of frequencies covered by the three systems includes fire, police, medical, and civil defense radio as well as systems for taxis, forestry services, highway trucking groups, industrial and public utility installations, and urban and inter-city transit lines.

The new Type MCA-301-A is specifically designed to withstand the hard usage of mobile service and is ideal for taxi cabs, forestry service, police, fire department and industrial use, according to Fred M. Link, director of Du Mont's Mobile Communications Dept. It is a frequency modulated transmitter-receiver, with power supply, housed in a single compact metal cabinet. High-efficiency circuits minimize the need for special heavy-duty generator, batteries, and wiring.

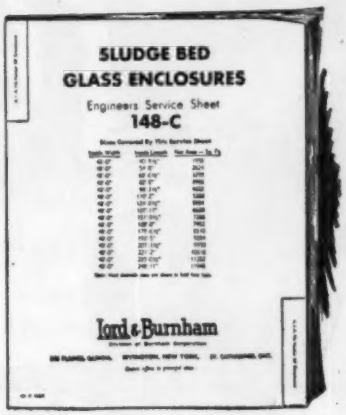
Transmitter and receiver specifications, electrical descriptions, and additional details may be obtained from the MOBILE COMMUNICATIONS DEPT., ALLEN B. DU MONT LABORATORIES, INC., 1500 MAIN AVE., CLIFTON, N. J., or use the Post Card in this section. Circle No. 701.

GLASS COVERS for SEWAGE TREATMENT PLANTS

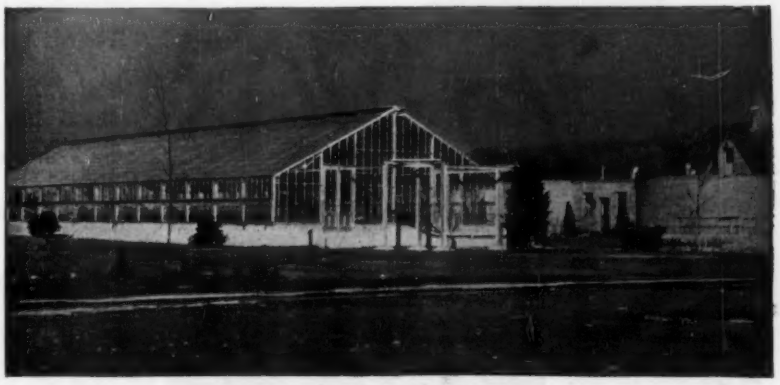
Sludge beds, sprinkling filters, tanks or wherever a glass cover is needed.

Send for These Valuable Engineers Service Sheets

Set of six Engineers Service Sheets furnished on request. Contain details, specifications and recommendations to suit individual job requirements.



Lord & Burnham
DIVISION OF BURNHAM CORPORATION
IRVINGTON, N. Y. **DES PLAINES, ILL.**



Typical Sludge Bed Glass Cover

powered for Performance

26' Bryant-built stock work boat, 25 H.P. Evinrude outboard motor installed in stern well.

BIG TWIN
25 O.B.C. certified B.H.P. at 4,000 R.P.M. Gearshift, separate plug-in fuel tank.

PROVED PERFORMANCE! No "maybe" when it came to picking the power plant for this husky work boat. In identical hulls the Evinrude 25 H.P. Big Twin had conclusively proved its advantages over conventional engine installations of the same rated horsepower. Higher speed, light or loaded. Greater maneuverability. Important space saving. Easy beaching. *Far lower cost*—as much as $900 *less* than the conventional installations.

With *performance,* an Evinrude gives you stamina and low upkeep you couldn't beat in any type of motor. A complete line, 3 to 25 H.P., to meet the widest range of work boat needs. See your Evinrude dealer—look for his name under "Outboard Motors" in the yellow pages of your phone book. For complete literature write EVINRUDE MOTORS, 4509 North 27th Street, Milwaukee 16, Wisconsin.

In Canada: Manufactured by Evinrude Motors, Peterborough, Ontario

Big Twin is also available in 20" extra depth model suitable for transom heights to 35". Photo shows Bristol Bay, Alaska, salmon gillnetters converted to power with this motor.

EVINRUDE
OUTBOARD MOTORS

High Cycle Electric Tools Get On-the-Job Power

A number of Bosch high cycle electric tools for street construction and maintenance, manufactured in Germany, are currently being distributed by the HOMELITE CORP., 107 RIVERDALE AVE., PORT CHESTER, N. Y. These include a powerful paving breaker used for demolition work and tearing up road surfaces; a builder's hammer for drilling and striking; and a rock drill, equipped with a Bosch pressure blower, that drills blasting holes, wedge holes, split holes and anchor holes in rock, concrete, and brickwork.

These high-cycle tools cost less to operate and maintain, and work with minimum vibration and noise. They are powered by a Homelite generator which is easily transported from job-to-job. The same lightweight, gasoline engine driven generators will also operate standard 110-volt universal electric tools and floodlights.

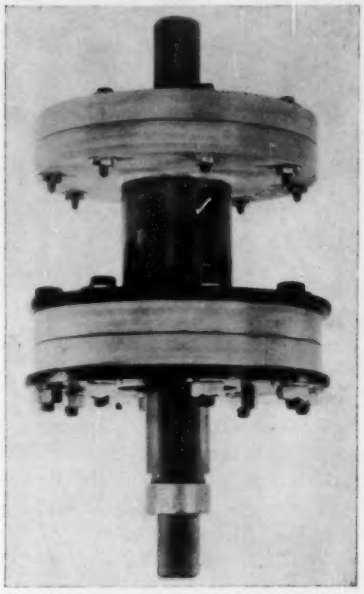
Detailed information on the Homelite Carryable Generator and the line of Bosch high cycle electric tools may be obtained directly from the company, or use the Post Card on the colored page in this section. Circle No. 705.

Chlorine Proportioner For Water, Sewage Works

Because a chlorinator feeds chlorine to your water or sewage line at a manually set rate, it is generally necessary to manually reset the chlorine flow rate whenever the main line flow rates change, in order to maintain constant dosage. The FISCHER & PORTER CO., 5330 FISCHER RD., HATBORO, PA., has developed a new unit for its chlorinator that automatically proportions the chlorine feed to the main line flow.

Incorporated into the Fischer & Porter chlorinator, the new direct hydraulic proportioner needs no maintenance, nor is it troubled by costly ratio controllers or complex transducers and pressure transmitters. The company will convert the chlorinator from manual rate adjustment to automatic proportioning either before shipment or after the unit has been in use.

Catalog 70-20 describes the automatic proportioner in detail. Write directly to the Fischer & Porter Co., or you may use the Post Card on the colored page in this section. Circle No. 726.



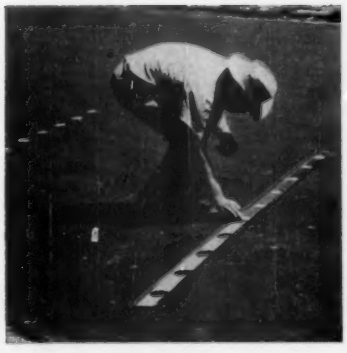
New Fischer & Porter unit proportions chlorine automatically.

For Traffic and Safety Signs Street Stencils and Buttons

— traffic signals, cones and marking machines — call, write, telephone (NOrwood 2-1613)

SARGENT & SOWELL

Aluminum stencils: for marking streets with letters 18 to 72 inches, numeral 36 to 72 inches; curb-marking stencils 2¼ or 4 inch characters.



Steel buttons: baked white and traffic yellow enamel, sizes 3 and 4½ inch; special nail available.

Standard signs: full line of warning signs 24 x 24 and 30 x 30 inch; stop signs 18 to 30 inch; parking signs 12 x 18 inch; directional signs 18 x 24 inch; street name assemblies. All—plain or reflectorized.

We also supply street marking machines, rubber traffic cones, and traffic signals.

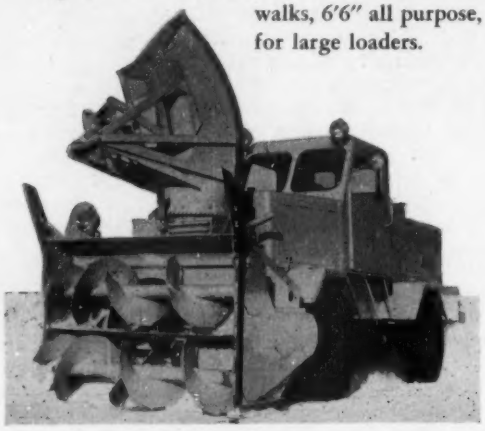
If it's a traffic device, WRITE . . .

SARGENT & SOWELL, INC., GRAND PRAIRIE, TEXAS

SICARD

The NEW SNOW MASTER BB BLOWER

The NEW SNOW MASTER BB BLOWER casts close, blows far, loads trucks. Quickly installed on tractors, lift trucks, and front end loaders. 36 HP engine, gear reduction (no belts) 25" chain driven auger, choice of chutes. Widths: 4'4" for sidewalks, 6'6" all purpose, 8'0" for large loaders.



SNOW MASTER JUNIOR

SNOW MASTER JUNIOR. Widely accepted for municipal maintenance. Highly maneuverable equipped with fluid drive, 4 wheel traction, fast wrist action chute. Will load at least 2 trucks per minute or cast over 100 feet.

DISTRIBUTORS FROM COAST TO COAST

SICARD INDUSTRIES INC. • 753 W. Main St., Watertown, N. Y.

NEW

LOW COST
ANTI FREEZING
3/4" COMPRESSION HYDRANT

MURDOCK Jr.

Made of Grade A Bronze and Grey Iron castings. Precision-machined to give decades of dependability. Thoroughly tested before shipment. Unexcelled for low-cost, all-weather service.

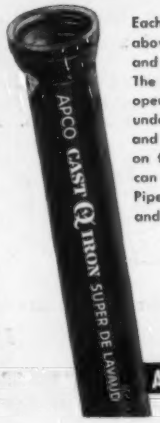
Write for Catalog and Prices

THE MURDOCK MFG. & SUPPLY CO., CINCINNATI 2, OHIO

OTHER MURDOCK PRODUCTS:

- HYDRANTS
- STREET WASHERS
- FOUNTAINS
- SHOWERS
- VALVES

TESTED AND RECORDED



Each length of pipe we manufacture passes through the above hydrostatic test press where it is filled with water and the pressure raised to 500 pounds per square inch. The most common water works pipe is designed for an operating pressure of 150 pounds per square inch. This undergoes the 500 pounds per square inch hydrostatic test and permanent records for each piece of pipe are kept on file for inspection by our customers at all times. You can be assured with Alabama's Super De Lavaud Cast Iron Pipe. In sizes of 3" to 24" in modern long lengths. Bell and Spigot, Mechanical Joint and Flanged Pipe.

General Sales Offices
ANNISTON, ALABAMA

We Invite Inquiries to Our Nearest Sales Office

120 S. Michigan Ave. Chicago, Illinois
350 Fifth Avenue New York 1, New York

ALABAMA PIPE COMPANY
ANNISTON ALABAMA

Purchasing

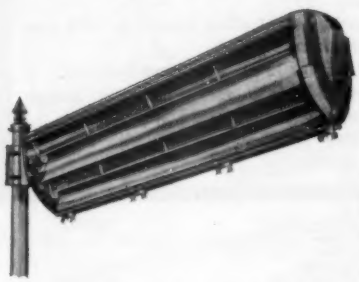
Portable Barriers Signal Danger

"Safe-T-Bar," a new portable barrier, incorporates three basic units: a hinged sign frame, a folding "A" leg assembly, and an adjustable-height single leg. These units may be quickly put together in any combination for single barricades, continuous barriers of any length, or enclosure barricades around manholes or excavations.

The joints between the sign frame units are articulated, enabling the barrier to follow irregular lines. The adjustable height single legs accommodate uneven terrain.

Literature and price lists are available from BARMOTIVE PRODUCTS, INC., 440 PERALTA AVE., SAN LEANDRO, CALIF. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 730.

Effective Street Lighting



A new 4-lamp fluorescent luminaire for street lighting systems is announced by S. Standley, manager, Lighting Sales, LINE MATERIAL CO., MILWAUKEE 1, WIS. Its 6-foot lamps provide a Type III or Type IV distribution pattern.

All metallic parts of the luminaire are cast or sheet aluminum, while covers are translucent plastic. Hinged at the top and latched at the bottom, the covers facilitate easy relamping and maintenance. Gaskets make the luminaire weatherproof and bug-proof.

For full information, write the company directly, or take advantage of the Post Card on the colored page in this section. Circle No. 727.

FLOATING Sealing Rings
Permit Closer Running Clearances . . .

MORRIS HORIZONTAL SPLIT *Double-Suction* WATER PUMP

No other pump has the Floating Sealing Rings . . . yet this exclusive feature alone makes the Morris Double-Suction Water Pump outstanding for efficiency and long service.

During the instant that the pump comes up to speed, but before full pressure is built up, the Morris Floating Sealing Rings adjust themselves to a uniformly close running clearance around the impeller. As soon as full speed is developed, the internal hydraulic pressure acting upon the vertical face of the Floating Ring, presses it tightly against the precision machined surface of the casing ring where it is firmly held in place.

This action permits machining the rings to closer clearances. Leakage is consequently reduced to a minimum, initial efficiency maintained for much longer periods of service. Assures concentricity of ring with impeller and eliminates binding due to abnormal operating conditions.

Advanced design of Morris Double-Suction Water Pumps and their several exclusive features assure increased hydraulic and mechanical efficiency . . . reliability . . . and low maintenance cost. Write today for free Bulletin 179.

MORRIS MACHINE WORKS
Baldwinsville, N.Y.
Sales Offices in Principal Cities

MORRIS *Centrifugal Pumps*

Don't Let "WINTER PARALYSIS" Cripple Your Town!

Prevent it with BAUGHMAN

. . . the SAFE name in Ice-Control Equipment

- **Complete Line of Pull-Type or Truck-Mounted Spreaders.**
- **Hydraulic, Mechanical or Traction Powered.**
- **For Sand, Cinders, Salt, Chips, Calcium Chloride, Gravel.**

THE NEW HYDRAULIC *"SPREAD MOBILE"*

- ***Exclusive new "Center-Spred" Design—spreads material under all four wheels for better operator visibility, perfect traction.***
- ***Operator can control direction of spread (left, right, or center) as well as amount and width of spread.***
- ***Hydraulically Controlled from Cab with one man operation.***
- ***Exhaust Heater to prevent load freezing.***
- ***Split-Bottom Dump for off-season dump-body uses.***
- ***Heavy-Duty Auxiliary Gas Engine for hydraulic system.***

Ask for a demonstration . . .
call your BAUGHMAN distributor

CALIFORNIA
La Habra—I. J. Cool Co.
1505 East Rd.
Tulare—Jim Ingle Co.
660 So. I St.
Oakland—Monarch Truck Equip. Co.
999 7th St.

COLORADO
Denver—Timpte Bros. Inc.
40th at York St.

CONNECTICUT
Hartford—Holmes-Talcott Co.
599 Franklin Ave.

DELAWARE
Milford—B. V. Wharton
Park Ave. & Washngtn. Sts.

ILLINOIS
Jerseyville—Baughman Equip. & Serv. Co.
Box 328
Mason City—Baughman Serv. Co.
Chicago—C. C. Fuller Co.
7913 So. Phillips Ave.
Moline—Moline Body Co.
222 52nd St.
Rockford—Nelson Trailer & Body Co.
11th st. Rd., R.F.D. 1, Box 187
East St. Louis—Transportation Equip. Co.
1354 St. Clair Ave.

INDIANA
Indianapolis—Allied Truck Equip. Corp.
1701 N. Sherman Dr.
Evansville—Hallenberger, Inc.
2730 Mt. Vernon Ave.

IOWA
Boone—Baughman Mfg. Co.
Iowa Sales Div., Inc.
Box 517
Des Moines—Hawkeye Truck Equip. Co.
9th St. at Keoway

KENTUCKY
Lexington—Wilson Mach. & Sply. Co.
561 W. 4th St.
Owensboro—Wilson Mach. & Sply. Co.
2601 W. 4th St. at Kimmel

MAINE
S. Portland—N. A. Burkitt, Inc.
R.F.D. 2

MASSACHUSETTS
Cambridge—Sandberg Equip. Co.
76 Lansdowne St.

MICHIGAN
Bark River—Bark River Culvert & Equip. Co.
Rockford—Burch Body Works, 202 Monroe
Saginaw—Scientific Brake & Equip. Co.
314 W. Genesee Ave.
Lansing—Truck & Trailer Equip. Sales Co.
Box 1346

MINNESOTA
Duluth—Road Mach. & Supplies Co.
210-212 E. First St.
Minneapolis—Ruffridge-Johnson Equip. Co. Inc.
3024 S.E. 4th St.

MISSOURI
Chillicothe—Cooke Sales & Serv., Inc.
1422 N. Washington
St. Louis—Machinery, Inc.
5081 Manchester Ave.
Sedalia—M. J. Ressel & Sons
817 E. 3rd St.
Hannibal—Riegel Tire & Implement Co.
422 N. Main St.
St. Louis—Sleeper Equip. Corp.
509 N. Channing Ave.

MONTANA
Billings—Industrial Equip. Co., 415 N. 27th St.
Great Falls—Normont Equip. Co., 420 3rd St., So.
Kalispell—Treasure State Equip. Co.

NEW JERSEY
Newark—Tyler-Preusser Mach. Corp.
50 Roanoke Ave.

NEW YORK
Groton—Highway Materials Co., Inc.
Buffalo—T. E. Potts Equip. Co., Inc.
2260 Sheridan Dr.
Pelham Manor—Tyler-Pruesser, Inc.
W. St. & Boston Post Rd.
Rensselaer—Van's Equip. Sales, Inc. Box 231

NORTH CAROLINA
Charlotte—Twin States Equip. Co., 1101 S. Clarkson
Raleigh—Twin States Equip. Co., 1400 S. Bloodworth

NORTH DAKOTA
Fargo—Northwestern Equip. Co.
2800 Front St.

OHIO
Canfield—Myers Equip. Co.
Cleveland—Ohio Truck Equip. Co.
3319 Regent Rd.
Columbus—Harry J. Reynolds & Associates, Inc.
1030 Jackson Pike

OREGON
Amity—Burlingham Meeker Lime Co.

PENNSYLVANIA
Harrisburg—F.W.D. Trucks & Equip. Co.
2200 Paxton Ave., Box 672
Philadelphia—Pavlov Equip. Co.
847 E. Chelten Ave.

SOUTH DAKOTA
Sioux Falls—Roy F. Drake Body & Equip. Co.
205 W. 4th St.

TENNESSEE
Knoxville—Brooks Equip. & Mfg. Co.
Davenport Rd.
Nashville—Dozier Equip. Co.
319 6th St.
Memphis—Scruggs Equip. Co.
623 Jefferson Ave.

UTAH
Salt Lake City—Lund Mach. Co.
49 N. 2nd W. St.

VERMONT
Montpelier—Vermont Rd. Equip. Co., Inc.
Box 98, River St.

WASHINGTON
Seattle—Air-Mac, Inc., of Washngtn.
3838 4th Ave. S.
Spokane—American Mach. Co.
1026 W. Broadway Ave.

WEST VIRGINIA
Morgantown—L. H. Jones Equip. Co.
Box 927

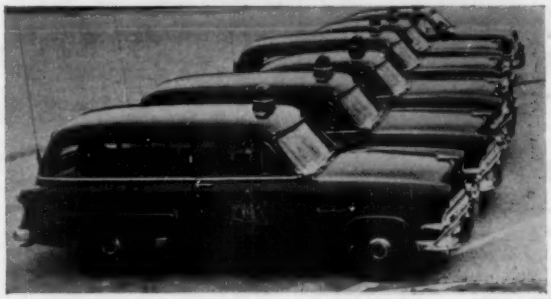
WISCONSIN
Milwaukee—Hunter Tractory & Machinery Co.
327 S. 16th St.

CANADA
Woodstock—Bickle-Seagrave Limited
Winnipeg—Mumford, Medland Limited
575 Wall St
Vancouver—Purves Ritchie Limited
845 Burrard St.

BAUGHMAN MANUFACTURING COMPANY
150 Shipman Rd. • Jerseyville, Illinois

Purchasing News

Emergency Signal Lights



According to George Otlewis, chief of police of Chicago's Park District, Beacon Ray revolving warning lights have been used on Park District police vehicles since 1949. The lights are used on patrols of the city's 205 miles of boulevards, including Chicago's Outer Drive. They are made by the Signal Div., FEDERAL SIGN AND SIGNAL CORP., 8756 SOUTH STATE ST., CHICAGO 19, ILL.

Food Machinery Offers C-P Sewage Pumps

Acquisition of the Chicago Pump Co. by the Food Machinery and Chemical Corp., is announced by Ben C. Carter, executive vice-president of the parent firm. The recent purchase adds a line of sewage and water-treatment equipment to Food Machinery's regular line of industrial and agricultural pumps.

Under the new setup, Chicago Pump will be an operational component of Food Machinery's Peerless Pump Division, located at 301 West Ave. 26, Los Angeles 31, Calif. According to G. F. Twist, vice-president of the parent company and manager of Peerless, it will continue to function under the management of George D. Bers, president of Chicago Pump, and Milton Spiegel, vice-president and general manager.

Let Us Show You How PROFITABLE a VERTICAL GARAGE Can Be For YOU!

We study and design parking garages for your location. We plan their capacity and profits.

Cost of various types of vertical garages. Which one is best suited to your needs. Cost of operation.

Estimate of cars accommodated by various types of garages. Probable net income on investment. Parking rates.

We can find the answers for you quickly and surely.

FREE—if you write on your letterhead—our book "Auto Parking."

Charles W. Lerch & Associates
1172 Board of Trade Building · Chicago 4

Twin Tank "Floor-King" for mops to 36 oz.

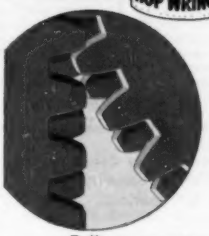
GEER The Royal Family of MOP WRINGERS PRES

Only GEERPRES WRINGERS

GEER The Royal Family of MOP WRINGERS PRES

1. Have exclusive Interlock Gearing
2. which multiplies wringer pressure
3. to squeeze mops drier
4. and eliminate all splash

GEER The Royal Family of MOP WRINGERS PRES



Exclusive Interlock Gearing multiplies pressure, squeezes mop DOWN, not out!

Fully guaranteed. Available in two styles and three size ranges to meet all mop wringing requirements.

Ask for Literature

GEERPRES WRINGER, Inc.
P.O. BOX 658 MUSKEGON, MICHIGAN

A BETTER WATER SUPPLY METHOD AT LESS COST!

with the exclusive **RANNEY®**

WATER COLLECTOR FOR YOUR CITY

Now in use by the following volume water consumers: American Cyanamid Co., Wallingford, Conn.; Boise Water Corporation, Boise, Idaho; E. I. DuPont deNemours & Co., Inc.; Granite City Steel Co., Granite City, Ill. City of Manitowoc, Wis.

Millions of Gallons

The Ranney Collector is a unique kind of "well." It can produce more pure, cool water from one well, for less money, than ever possible before, with multiple wells. This greater yield adds millions of gallons to your present water supply, with fewer pumps and personnel. Installation and maintenance costs are held to a minimum.

Eliminates Filters

You can avoid the cost of maintaining an elaborate filter plant and water treatment station. The Ranney Method of water collection supplies a huge volume of naturally filtered water through exclusively engineered, screened horizontal well points that never clog. It pays to investigate the Ranney Method today!

I believe a Ranney Water Collector can save money for my community. Please send me further information.

Name.....

Company.....

Address.....

RANNEY METHOD WATER SUPPLIES, INC.

Water Supply Engineers and Contractors

841 Alton, Columbus 19, Ohio · Dept. AC-9

Greater tractor use the year 'round with M-B Tractor Sweepers

Don't let your tractor sweeper hibernate for the Winter months — put it to work clearing snow from roads, streets, parking areas and ice skating ponds. During the rest of the year your tractor and M-B Sweeper is constantly on the go keeping your streets and roads safe and clean. When not in use as a sweeper, your tractor is kept busy doing general drawbar work and other odd jobs.

M-B brushes are made of steel or the finest fiber. Sweep a 5' path 30° to right. Hydraulically controlled brush may be raised 8" to clear obstructions. Sprinkler attachment available for dust abatement. Get complete details today.

Built for

Ford • Case • Ferguson

Minneapolis-Moline

International Harvester

John Deere

Also pull-type traction and engine powered sweepers.

GENERAL SWEEPING

LEAVES

M B CORPORATION

FORMERLY MEILI-BLUMBERG CORP.

NEW HOLSTEIN, WISCONSIN

Purchasing News

Digging a hole 5 feet deep and only 36 inches long is easy with the new dipper.

Dragshovel Features Short Dipper

When uncovering a pipe joint for repairing leaks and gas mains, it is best to make a small hole that you can fill in quickly. A good way to do this is with the new short dipper developed for use with the Bucyrus-Erie Hydrohoe.

Easily rotated within a smaller arc than the standard wrist-action dipper, the unit is 22 inches wide. The addition of side cutters increases its cutting width to 26 inches. The dipper can dig a hole 5 feet deep and 36 inches long, with vertical walls and a comparatively flat bottom. It rotates from 45° behind to 50° ahead.

A complete description of the new, short utilities dipper as well as the company's hydraulic dragshovel, the Hydrohoe, is available from the BUCYRUS-ERIE CO., SOUTH MILWAUKEE, WIS. Write the company directly, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 702.

Manufacturer's Representatives Wanted

to sell a revolutionary new street marker to cities, counties, states, parking lots, garages, etc.

For full information, write to

ROBBINS TIRE & RUBBER CO., INC.

Tuscumbia, Alabama

FOR QUICKER, SURER LOCATIONS EVERYTIME

THE *New* AQUA VALVE BOX LOCATOR

New engineering design, perfected after two years of research and now built into the AQUA at no additional cost to you MEANS ABSOLUTE MINIMUM OF NEEDLE-SPINNING ACTION!

YOUR NAME IN GOLD FREE!
It's Magic! The new Aqua Extra Conductor development . . . an exclusive in the location instrument field!

$29.50 F.O.B. CINCINNATI

SEND NO MONEY! Try AQUA for 15 days — you be the judge.

". . . greatly improved . . . no needle nervousness . . . pinpoint accuracy. The new Aqua has our unqualified approval!"
W. F. Becker, Chief Inspector
The Ohio Fuel Gas Co. Columbus, Ohio

Literature on request — address Dept. AC

AQUA SURVEY & INSTRUMENT CO.
2518 LESLIE AVE. . CINCINNATI 12, OHIO

For the LOW BID on any job, figure your costs with BARCO

BARCO *Gasoline* RAMMER

SOIL COMPACTION is here to stay! *Specified Compaction* is now accepted practice on all modern construction projects. The BARCO RAMMER gives you specified compaction on these jobs at very little extra cost. Time after time, it has been proven that no other type of equipment can match BARCO PERFORMANCE:

- Better work! Easy to meet specifications calling for 95% to 97.5% (modified Proctor) compaction.
- Ideal for work in restricted areas: inside buildings, close to walls, culverts, and abutments — in trenches, ditches.
- Faster compaction! 20 to 30 cu. yds. per hour — day in and day out.
- One man operation! Completely self contained; no auxiliaries needed.
- Low operating cost. Low initial cost.
- SAFE! Simple to operate. Operators like Barco Rammers.

ASK FOR A DEMONSTRATION—See for yourself—ask for our nearest distributor to give you a demonstration.

BARCO MFG. CO.
535K Hough Street
Barrington, Illinois

Ask for Catalog 621

PHILADELPHIA ORDERS 184 ROTO-PAC UNITS

CITY ESTIMATES 600,000 LBS. MORE REFUSE COLLECTION PER DAY!

The City of Philadelphia has just ordered 184 Roto-Pac Refuse Collection Units. This order was based on a 2 year comparison between escalator-type compaction and rear-door compaction. On the basis of daily tests run during the past 2 years the officials of the City of Philadelphia estimate that the escalator-compactor type of refuse collection unit will carry 600,000 pounds more refuse per day than rear-door compaction vehicles.

Your city can achieve faster, cleaner and more economical refuse collection with Roto-Pac . . . the modern refuse collection unit.

★ *CHECK THESE FEATURES* ★

- AUTOMATIC CONTINUOUS LOADING
- AUTOMATIC CONTINUOUS PACKING
- GREATER COMPACTION
- LOWEST LOADING HEIGHT
- LOWEST OPERATING PRESSURE (LESS ENGINE WEAR)
- HANDLES STRAIGHT ASH LOADS
- DOUBLE PIVOT TYPE TELESCOPIC BODY HOISTS
- LOWER OPERATION COSTS
- DOUBLES AS SNOW-HAULING VEHICLE

VISIT OUR BOOTHS . . .

at the

PUBLIC WORKS CONGRESS and EQUIPMENT SHOW

Booths A 4·5·6

ATLANTIC CITY, N. J. SEPT. 19th THRU 22nd

SALES AND SERVICE IN ALL PRINCIPAL CITIES

CITY TANK CORP.

53-09 97TH PLACE

CORONA, LONG ISLAND, N. Y.

Purchasing

Improved Asphalt Distributor

Expedite your city's blacktop paving jobs with this new "Precision" bituminous distributor made by CARTWRIGHT INDUSTRIES, 725 *N.* 40TH ST., BIRMINGHAM, ALA.

The distributor is designed with a side-mounted engine located in a cool, accessible place, directly ahead of the right rear wheels. This mounting places the tank close to the cab, eliminating excessive overhung weight at the rear. An improved heating system protects the bitumen.

Three additional advantages of using the new "Precision" distributor are its low center of gravity increasing the life of the truck; its ability to carry a greater pay load; and the incorporation of a header designed for a full circulating hot spray bar.

Detailed information on the new distributor is available from Cartwright Industries, or you may use the Post Card in this section. Circle No. 714.

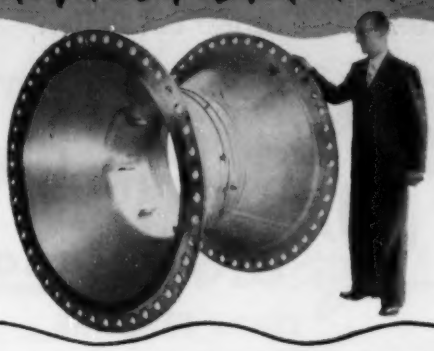
Autocar Division Moves To Exton

The administrative, sales, and production offices of the Autocar Division of The White Motor Co., have been moved to new plant facilities at Exton, Pa., according to a recent announcement. These functions were formerly handled at the firm's Ardmore (Pa.) plant, which has since been closed. The Division's parts and service facilities have been newly located at 34th St. & Indiana Ave., Philadelphia.

Further news from The White Motor Co., concerns the completion of a program which provides the Autocar Division with more than 150 sales, service and parts outlets throughout the country. Beginning this month, reports H. J. Nave, Autocar's director of service, some 200 centers will be available where White and Autocar vehicles, as well as competitive brands, can be completely serviced.

FOR FLOW MEASUREMENT

only the Gentile FLOW TUBE manufactured by FOSTER offers you all these* **ADVANTAGES:**



*Gen-til-'ly

ACCURACY — Produces differential from points of equal cross-sectional area . . . furnished with head capacity curves, and guaranteed for exceptional accuracy when used with any standard indicating, recording or integrating meter.

LOW HEAD LOSS — Available in several types and D/d ratios to provide differentials that can be accurately measured with least head loss.

LOW INSTALLED COST — Average length is only 1½ times the pipe diameter, and straight runs entering and following are not required unless installed near throttling valves or regulators.

Write for Bulletin FT-101 or specific recommendations

75 YEARS OF EXPERIENCE

FOSTER ENGINEERING COMPANY

835 LEHIGH AVENUE — UNION, N. J.

AUTOMATIC VALVES • SAFETY VALVES • FLOW TUBES

Representatives Wanted

Who are currently selling to traffic equipment users in municipal, county, state and other government offices.

We have a new traffic-lane marking compound, already proven and accepted, which wears longer, dries faster, and covers better. Competitively priced. Full factory cooperation. Exclusive territories.

For full information, please write office nearest you, telling us about yourself and the territory you cover.

General Signal Company

205 East 6th Street, Cincinnati 2, Ohio
80 West Broad St., Mount Vernon, N. Y.

Manufacturer's Representatives Wanted—

To sell TOSSIT's to States, Counties, Cities, and Mosquito Abatement Districts.

TOSSIT Capsules, now used by an ever increasing number of those interested in the successful control of mosquitoes.

TOSSITS make it possible to larvacide areas inaccessible to power or hand spraying equipment.

For complete information write to:

WYCO, INC.
P. O. Box 6128
5200 So. Dixie Hwy.
West Palm Beach, Fla.

KA-MO

PORTABLE DRILLING EQUIPMENT

SAVES time labor money

A 36" hole, 16' deep, one every 40 minutes.

Suspend this unit from your crane boom or derrick truck.

Drill for concrete piers, shallow wells, elevator shafts—prebore for piling.

Drill for foundations inside of a building or under foundations of building.

KA-MO drills in places inaccessible to other boring equipment. Necessary accessories can be furnished to convert any motor (air or electric) from vertical to horizontal drilling.

Horizontal Boring for

water, sewer, oil and gas pipelines, electric conduits—under streets—highways—sidewalks—lawns—railroad beds, etc.

When drilling inside casing, drill and casing move forward at the same time—or—drill without casing—clean sewers, culverts.

Drills from 2½" to 48" dia. and lengths to meet your needs.

POWERED BY
Air Motors from 4 H.P. to 18 H.P.—in dual or triple drives to 45 H.P.

Electric Motors from 1.9 H.P. to 100 H.P. or Gas Engine Drive.

Let us suggest a solution for your drilling problems. Call or write

Air motor drills 20" hole 100' long.

773

KA-MO TOOLS, INC.

EARTH BORING EQUIPMENT

1845 SOUTH 55th AVE. • CICERO 50, ILL.

Nite-Bright

HIGHWAY SIGNS

"BRIGHT BY DAY — BRILLIANT BY NIGHT"

FOR THE BEST IN TRAFFIC SIGNS (heavy type)
ALUMINUM SIGNS REFLECTORIZED WITH SCOTCHLITE • EMBOSSED STEEL BAKED ENAMEL SIGNS
CHANNEL IRON SIGN POSTS IN STOCK
TRAFFIC CONES—IMMEDIATE SHIPMENT

See Our Listing in the 1954 Edition of The Municipal Index

Write Us for Complete Information

NITE-BRIGHT SIGN COMPANY

140 JAMES STREET, BRIDGEPORT 4, CONN.

HERE'S THE NEW White TROWELER WITH EXCLUSIVE RETRACTABLE WHEEL*

Model T-1 White troweler, 36" ring. *Patent No. 2,621,568.

WHEEL UP TO TROWEL—Blade pitch control and safety throttle on handle. Blades stop and engine idles if operator lets go of machine. Blade pitch adjustable during rotation.

WHEEL DOWN TO MOVE—One man easily wheels White troweler from slab to slab or to truck—an exclusive White feature.

TEN SECONDS—To remove ring and wheel machine through narrow doorway; or to clean or change blades.

SIXTY SECONDS—To completely disassemble power unit, ring, blades and handle.

SEE IT . . . TRY IT . . . COMPARE IT!

Write for full information and name of nearest dealer.

WHITE MANUFACTURING COMPANY, ELKHART 1, IND.

Purchasing

New Single-Stage Fire Pump

A 500-gpm centrifugal fire pump equipped with either a gear-driven or electrically driven primer, is announced by the WATEROUS CO., 70 E. FILLMORE AVE., ST. PAUL 1, MINN. It features impeller shaft bearings that run in oil, and are completely protected from water.

Literature describing the new fire pump is available directly from the company, or you may use the Post Card in this section. Circle No. 720.

No Compressor Needed

You don't need an air compressor to operate this handy, portable gasoline hammer. In a recent issue of THE AMERICAN CITY, we regretfully confused the Barco hammer with an air-compressor-driven unit when actually, it is a self-powered tool operated by one man.

Standard Barco gasoline hammers are designed to deliver up to 1,700 strokes per minute using about one quart of gasoline per hour. They are quickly transported from job-to-job, and may be used effectively for pavement breaking, asphalt cutting, frost breaking, and a variety of street maintenance and utility jobs.

A detailed description of this profitable tool is contained in *Bulletin* 613 available from the BARCO MFG. CO., DEPT. H, 1801 WINNEMAC AVE., CHICAGO 40,, ILL. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 741.

PACKAGED ACCESSIBILITY...

with THOMPSON

Servisafe

BRACKET UNITS

(for walls and wood poles)

Here . . . ready-to-install . . . is a new concept in outdoor lighting efficiency and economy.

"Servisafe" Bracket Units combine an unlimited range of applications with these unique advantages . . . (1) luminaire mounting heights up to *60 feet above ground level* . . . (2) all-weather accessibility for quick luminaire maintenance . . . (3) absolute safety is provided because maintenance men work on a dead fixture and keep *both feet on the ground throughout entire servicing operation.*

These exclusive features are provided by the patented disconnecting and lowering hanger mechanism incorporated in all "Servisafe" Units. Easy to operate, this device reduces servicing time and hazards to a minimum . . . permits unskilled workmen to handle luminaire maintenance.

Designed for new installations and the rapid conversion of existing facilities, "Servisafe" Bracket Units can be used with all standard pendant and flood type lighting fixtures.

WRITE FOR BULLETIN WPH-54 FOR ADDITIONAL DATA.

TYPICAL WOOD POLE BRACKET INSTALLATION

THE THOMPSON ELECTRIC CO.
1120 Power Avenue • Cleveland 14, Ohio
Please send me, without obligation, BULLETIN WPH-54 describing your new "Servisafe" Units.
NAME _____ TITLE _____
COMPANY _____
STREET _____
CITY _____ ZONE ___ STATE _____

4334-TE

THE THOMPSON ELECTRIC CO.

1120 POWER AVENUE • CLEVELAND 14, OHIO

All Equipment and materiel Accounted For

Any city to know what it's worth must have an inventory of all equipment and materiel. This means positive identification through TAGS. DASHaplate Metal Tags are the most satisfactory for identifying street and highway equipment, furniture and business machines, water plant equipment, fire trucks and traffic signals and meters, and all materiel. DASHaplates give *positive* identification and control of all municipal property.

Write for details about this inexpensive method of controlling all municipal equipment and materiel.

DASHaplate METAL TAGS RESIST WEATHER, CORROSION & MOST ACIDS.

10 COLORS GIVE CODING FLEXIBILITY TO YOUR IDENTIFICATION SYSTEM.

SIZES: 1/2 X 2 TO 3 X 5 INCHES.

DATA MAY BE WRITTEN OR EMBOSSED ON DASHaplates.

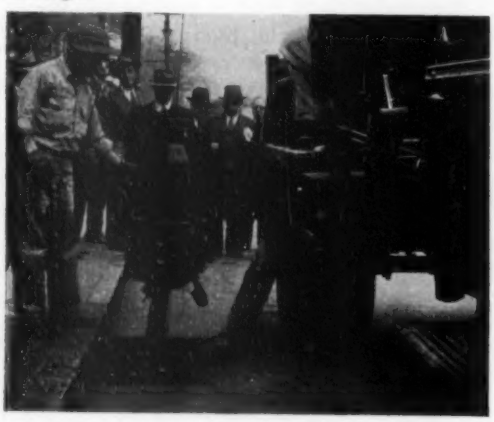
The best way to get acquainted with these Tags and their advantages is to order and use our Sampler Kit with 500 5/8 x 3 1/2 inch DASHaplates, a DASHawriter, and the weather and chemical resistant DASHafluid, and full directions.

$10 postpaid

DASHEW BUSINESS MACHINES, INC.

5886 SMILEY DRIVE
CULVER CITY, CALIF.

Anything that can get into a catch basin, a Hayward Orange Peel Bucket can take out—muck, sticks, stones, ballbats or baby carriages.



And Quick Scranton, Pa., cleans 25 basins a day in hillside terrain where rains wash sand and gravel from dirt streets into the catch basins.

Economical The Hayward Catch Basin Bucket was designed specifically to solve the problem of cleaning sewer catch basins that beset nearly every city and town in the country. Write for Bulletin 805.

THE HAYWARD COMPANY
50 Church St. New York 7, N. Y.

The NEW IMPROVED **NETCO** CATCH BASIN CLEANER
WITH PNEUMATIC CONTROLS

A Necessity For Every Municipality

Easily mounted on any short wheel base truck with 8 ft. in back of the cab, the Netco can be operated continuously, averaging 20 to 30 catch basins a day. The Netco with its two powerful pneumatic buckets (orange peel or clamshell) is simple to operate, has a hoisting capacity up to 1500 lbs., and easily removes all debris through openings as small as 16 inches. *Send for our six-page descriptive folder.*

NETCO DIVISION
CLARK-WILCOX COMPANY
118 Western Avenue
Boston 34, Massachusetts

Purchasing News

New Motor Grader

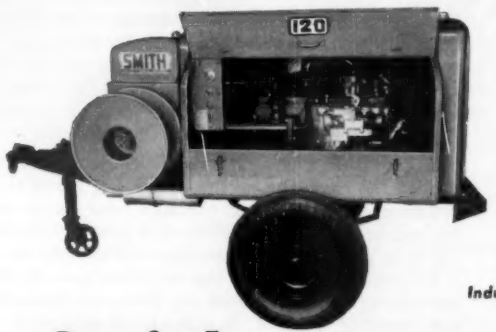
Newest addition to the J. D. Adams' family of motor graders is the Model "330."

A new Adams motor grader, the "330," complete with a 75-hp International diesel engine is announced by the J. D. ADAMS MFG. CO., INDIANAPOLIS, IND. It has a 12-foot blade and weighs 20,500 pounds or more, depending upon equipment.

The "330" is the latest of several new and improved models recently introduced by the company. Other motor graders include the "660" with a 140-hp engine; the "550" with a 115-hp engine; and the "440" which features an 85-hp engine.

All models feature a fully-constant-mesh transmission with helical gears mounted on roller bearings for quiet operation, long life and easy shifting; 8 forward speeds up to 25 mph; 4 reverse speeds to 13 mph; optional "creeper" gears from ¼- to 1¾ mph; rubber-mounted engines for floating power; and a dual braking system wherein the service brake applies hydraulic pressure to

(*Continued on page* 253)



Model 120-P

Powered by CHRYSLER Industrial Engine

Smith 120-P air compressor

Operates all these tools—for less!

- ✓ Two 80-lb. paving breakers.
- ✓ Two 80-lb. sheeting drivers.
- ✓ One 50-lb. rock drill.
- ✓ Four backfill tampers, or two concrete vibrators.

Write for complete facts and names of nearest dealer!

CUTTING COSTS FOR CONTRACTORS— Maine to California!

The Smith 120-P gives operating economy that big compressors can't approach. Goes where big, bulky compressors can't go. Powered by heavy-duty Chrysler Model 22 Industrial Engine. Simple, compact design—minimum fittings, gaskets, etc. to break down or cause trouble. No couplings, no clutch. Finned aftercooler reduces air temperature approx. 200°, gives longer hose life!

Also the Smith 70-P Compressor

GORDON SMITH & CO., Inc.

425 College Street
Bowling Green, Kentucky

Insto-Gas

T. M. REG. U. S. PAT. OFF.

JUMBO FURNACE

FOR UTILITY CONSTRUCTION WORK

Now Insto-Gas offers JUMBO, an instant lighting furnace that will melt large quantities of lead, babbitt, zinc and compounds quickly. Only 15 minutes heating time required for 200 pounds of lead.

The broad base of the JUMBO furnace permits use on uneven or soft ground, and a convenient bail handle makes it easy to move on the job. Cast iron melting pots with pouring lips, tilting lugs and tilting hooks are available in 100 and 200 pound capacity.

When a 50 ft. connecting hose is used the JUMBO furnace can give service over a wide area without moving the cylinder. The flame control valve is located on the furnace.

INSTO-GAS TORCHES

Utility Maintenance departments use Insto-Gas torches for soldering, sweating copper pipe fittings, preheating and thawing.

INSTO-GAS EQUIPMENT IS LISTED BY BOTH UNDERWRITERS LABORATORIES AND FACTORY MUTUALS LABORATORIES

Write today for new folder on INSTO-HOT SALAMANDERS

MAIL TODAY

Please send information on Insto-Gas to:

Name .....

Address .....

AC .....

Insto-Gas Corporation • Detroit 7, Mich.

BIG TOWN

...AND LITTLE TOWN, U.S.A.

USE

BURROUGHS SENSIMATIC

ACCOUNTING MACHINES

Here is a new principle in modern municipal accounting—a machine that's swift, efficient, yet so versatile that it can handle general accounting and budget control of any branch of municipal administration. It's the Burroughs Sensimatic Accounting Machine.

Sensimatic's amazing effort-free speed and accuracy come from the exclusive sensing panel that automatically directs it through every accounting operation. When a different or new accounting job is to be performed, the operator simply turns a job selector knob and the machine is ready for the new procedure. There are fewer decisions for the operator. In fact, Sensimatic is so simple to operate that beginners quickly become expert.

Municipal administrators who want efficient accounting operations find that Burroughs Sensimatic provides outstanding savings in time and effort, with unerring accuracy. Sensimatic is available in a variety of models and totals to handle all applications. For a personal demonstration phone your local Burroughs office . . . listed in the yellow pages of your phone book. Or write Burroughs Corporation, Detroit 32, Michigan.

WHEREVER THERE'S BUSINESS THERE'S Burroughs

Purchasing

(*Continued from page* 251)

a transmission brake as well as to the wheel brakes.

A variety of optional equipment is available, including a power-shifted moldboard, bulldozer, scarifier and snow-removal equipment. An elevating grader attachment may be obtained for larger machines.

Information on the Adams line of motor graders is available directly from the manufacturer, or use the Post Card in this section. Circle No. 738.

New Line Marker Sweeps As It Paints

A self-sweeper on the new Mark-A-Zone paint striping machine removes interfering objects from the path of the unit, expediting line marking on streets, aisles, and in parking areas.

Designed with a head, 5 inches wide, the Mark-A-Zone will stripe lines up to 6 inches wide. The spreader head feeds paint automatically on contact with the surface—shuts off when raised. It spreads a thick, clean line of paint in straight lines or circles. When striping with beaded paint, the spreader removes excess film from the beads. When working on curves and in close places, the guide wheels may be raised.

The complete Mark-A-Zone kit, with chalk and line, and sketches and measurements for easy layout and striping, is available from the S. B. Beugler Co., 3667 Tracy St., Los Angeles 39, Calif. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 732.

1 SCHIELD Bantam DOES MORE EARNS MORE

is the most versatile "tool" you can own!

Get rid of those expensive specialty rigs that are used only once-in-awhile. They run up equipment inventory costs, have high operating and maintenance due to lack of use -- present costly labor problems. With a mobile T-35 Carrier BANTAM or new C-35 Crawler BANTAM you've got a multi-purpose tool that lifts, excavates, trenches, pile drives, loads and unloads bulk material, pours concrete - does them all efficiently, quickly, at lowest operating and maintenance costs in the industry.

SEWER INSTALLATIONS

SPOT REPAIRS

STREET REPAIRS

LOOK WHAT A BANTAM DOES FOR YOU!

- 90 to 100 Cu. Yd. Hourly Production as a shovel.
- Lifts 10,000 to 12,000 lb. loads . . . booms up or down safely . . . accurately.
- Digs 100' of 5' trench per hour with Back Hoe.
- Loads out logs, pulp, rail ties and stringers, steel and other materials fast as crane with grapple or hook!
- Also works with pile driver, concrete bucket, magnet, backfiller, and clamshell.

LOOK WHAT OWNERS REPORT ON MAINTENANCE AND REPAIRS

- "Total maintenance cost of $60 to $70 for 2-year period on 2 Bantams."
- "Over 8 year period owning 4 Bantams total maintenance cost averaged $200 per year."
- "No maintenance or repair at all in 8 months' operation."
- "Total maintenance includes cables, bucket teeth -- total $100. No maintenance on basic units in 9 months."

ASK FOR FREE DEMONSTRATION NOW!

Let us prove to you that a Bantam can EARN MORE BECAUSE it DOES MORE!

MAIL THIS COUPON

SCHIELD Bantam COMPANY • 234 Park St., Waverly, Iowa, U.S.A.

SB-AC-4

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

SEND ME INFORMATION ON:

☐ Re-manufactured Crane Carrier

☐ All New Crane Carrier ☐ Re-manufactured Truck Mounting ☐ C-35 Crawler

SEND INFORMATION ON THESE ATTACHMENTS:

☐ Clam ☐ Crane ☐ Concrete Bucket

☐ Back Hoe ☐ Dragline ☐ Pile Driver

☐ Shovel ☐ Backfiller ☐ Magnet ☐ Grapple

Laying a section of 42-in. pipe on Hearne Avenue, just east of the Cincinnati Zoo.

Cincinnati Meets Increased Water Demands with New 42-in. Tar-Enameled Steel Main

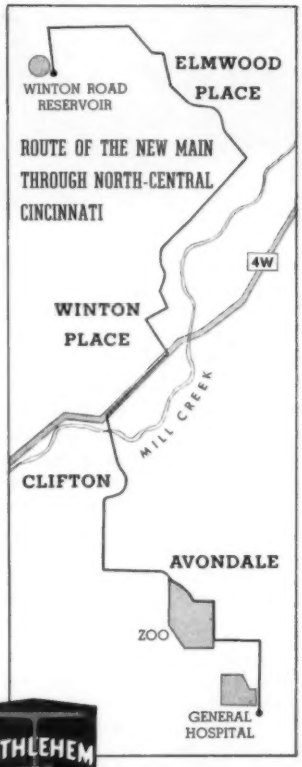
The Cincinnati Water Works recently came up with a single answer to the double problem of how to supply the fast-increasing water demands of (1) the mid-city commercial and industrial Central Service section, and (2) the growing Western Hills residential area.

Their solution called for a 36,000-ft-plus steel main, 42 in. ID, to connect the Main and Tennyson pumping stations with the Winton Road Reservoir. The added gallonage would be used to serve the Eastern and Western Hills, thereby releasing a huge quantity of water for Central Service. Steel pipe was considered a "must" to handle the working pressures involved, sometimes as high as 200 psi.

Now nearing completion, the line starts at the corner of Union St. and Burnet Ave., in front of the Cincinnati General Hospital, and extends through Avondale, Clifton, and Winton Place to the Winton Road Reservoir in the heights north of the city.

All of the pipe used on this job, together with a variety of fittings, was supplied by Bethlehem, making the seventh time since 1938 that Cincinnati has chosen Bethlehem Pipe.

Bethlehem Tar-Enameled Steel Pipe is furnished in 40-ft lengths and in diameters from 18 in. to the largest permitted by common carriers. It is readily joined in the field by welding, mechanical couplings and by riveting. For further information, we suggest that you phone or write the nearest Bethlehem sales office.



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM *Tar-Enameled* STEEL PIPE

BETHLEHEM STEEL

Purchasing News

Vacuum Leaf-Loader Picks Up Cans and Bottles, Too

Similar in design to an oversized vacuum cleaner, this powerful Gledhill-Elliotte vacuum leaf-loader, the "Sucker-Upper," does a thorough job of collecting leaves, cans, bottles, paper and other debris directly from the curb. It consists of an engine and blower assembly mounted on a portable 2-wheel trailer, and is easily connected to the truck.

The piping from the suction side of the blower is connected to a wide nozzle, located just above street level, while the discharge side of the blower connects with a large metal duct leading to the collection truck. Where leaves are inaccessible to the standard suction nozzle, a special long hose, 10 inches in diameter, is available, complete with a nozzle and handles.

In addition to picking up and loading leaves, the "Sucker-Upper" may be used for blowing sand, collecting debris deposited in corner waste receptacles, ventilating sewers, and cleaning salt and cinders on roads and runways.

Additional information on the leaf-loader will be furnished by THE GLEDHILL ROAD MACHINERY CO., GALION, OHIO, or use the Post Card in this section. Circle No. 739.

. . . with this

F & E INCINERATOR STOKER

Patents Pending

F&E Incinerator Stokers apply not only to new incinerator plants, but to many now existing furnaces. Results—up to 50% increased burning capacity; big reduction in labor; big reduction in maintenance.

F&E FLYNN & EMRICH CO.

301 N. Holliday St. ★ Baltimore 2, Maryland

A. C. Household ELECTRICITY Anywhere . . . IN YOUR OWN CAR!

BE PREPARED FOR ANY EMERGENCY WITH ATR INVERTERS!

THIS COULD HAPPEN!

Ideal for Emergency Lighting and Power Applications for Civil Defense, Red Cross, Rescue Work, etc. Simply Using Extension Cords.

EASY TO INSTALL ↓ EASY TO OPERATE ↓

Also . . . DICTATE REPORTS ACCURATELY-PROMPTLY!

make your car, boat or plane a "rolling office" WITH ATR

INVERTERS

for changing your storage battery current to A. C. Household ELECTRICITY Anywhere . . . in your own car!

LIST PRICE $22.50 AND UP

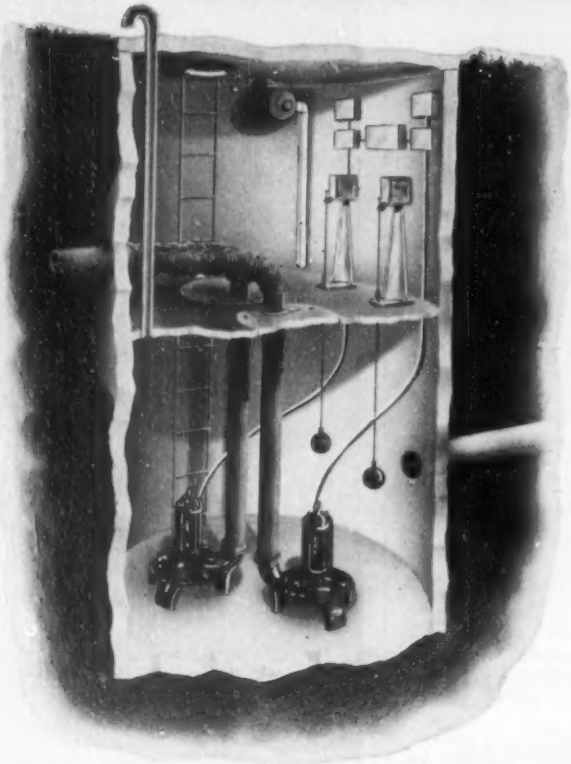
ATR INVERTERS especially designed for operating standard 110 volt A. C.

• TAPE RECORDERS • DICTATING MACHINES
• WIRE RECORDERS • ELECTRIC RAZORS

See your jobber or write factory today for complete information

ATR AMERICAN TELEVISION & RADIO CO.
Quality Products Since 1931
SAINT PAUL 1, MINNESOTA—U. S. A.

The SUBMERSIBLE SEWAGE EJECTOR



Engineered for

UNDERGROUND LIFT STATIONS

The **weil** NON-CLOG Screenless Submersible Sewage Ejector with the BLADELESS impeller will pump ALL sewage — household sewage, industrial sewage — even rags.

Capacities 35 to 300 GPM with heads to 45 feet.
Discharge: 3" and 4"; ½ H.P. to 3 H.P. Motors.

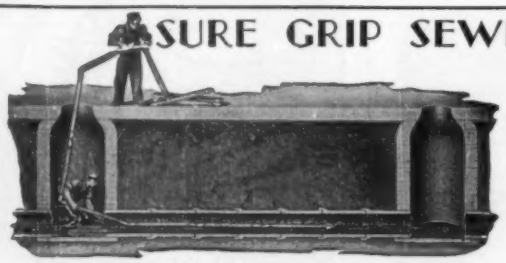
Illustration shows economical installation which does not require a PUMP HOUSE to mar the landscape. This reduces the overall cost of the Lift Station.

Send for **NEW** *Bulletin*

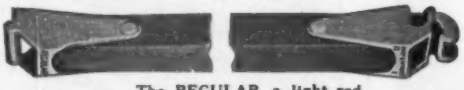
NEW Bulletin SE 680 B with plans and specifications for lift station installations as well as other applications will be sent upon request.

weil PUMP COMPANY
1518A NORTH FREMONT STREET • CHICAGO, ILLINOIS

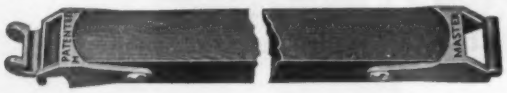
SURE GRIP SEWER RODS and ACCESSORIES



are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.



The REGULAR, a light rod,
Fir stock 1¼ x 1¼ inch square.



The MASTER, a heavy duty rod,
Fir stock 1½ x 1½ inch square.

Write for catalog on complete line of sewer cleaning equipment.

EXPANDING SEWER MACHINE CO.
NAPPANEE, IND.

Is Your City Up-to-Date in Its Operation Methods?

THE AMERICAN CITY
470 Fourth Ave., New York 16, N. Y.

Please send me ..... copy (copies) of your Municipal Official's Handbook (Price per copy is $3.00)

A check covering this order is enclosed ..... Please bill me ..... (Check one)

Name .....

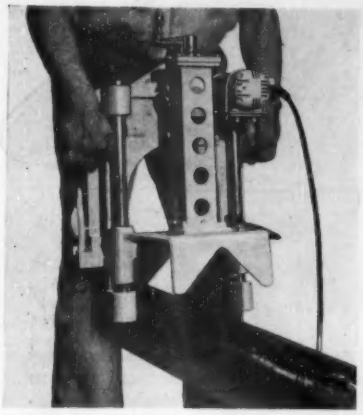
City or Company .....

Address .....

City..... Zone..... State.....

A good way to find out is to read about the practical experience of other city officials who have problems like yours. This experience is described in the "Municipal Official's Handbook" by William S. Foster, Engineering Editor of *The American City*. The latest methods on street construction and maintenance, snow removal, street cleaning, and refuse collection and disposal are explained in detail. Write us today for your copy.

Cuts Pipe Quickly



You can cut 2- to 8-inch cast iron and steel pipe as well as bar stock and beams, quickly and efficiently with the new Guillotine saw. This portable power pipe saw weighs only 120 pounds, and will operate in a space 25 inches wide. It is made by THE E. H. WACHS CO., 1525 N. DAYTON ST., CHICAGO 22, ILL.

A chain pipe vise clamp attaches the saw to the pipe, and the unit is ready to cut in seconds. A cast steel V saddle base assures a square cut at right angle to the pipe, with the pipe acting as a machine tool base.

The Guillotine saw will cut 6-inch standard wall steel pipe in eight minutes. It cuts 6-inch standard wall cast iron pipe in some four minutes.

Additional information may be obtained from The E. H. Wachs Co. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 722.

Plastic Waterstop For Concrete Construction

A strip-type waterstop, introduced for use between closely spaced horizontal slab and vertical wall concrete joints, is valuable where reinforcing steel or other obstructions prevent the use of labyrinth stops. Made of polyvinyl plastic, it is particularly effective in the construction of water reservoirs, and of foundations for schools, hospitals, and water and sewage plants.

The new waterstop is 6 inches wide, 5/16-inch thick at the sides, and tapers to 3/16-inch in the middle. Combined with a furrowed and ridged texture, this slightly concave shape assures positive locking of the stop to the concrete.

The vinyl plastic strip is sufficiently rigid to withstand the pressure of wet concrete, and flexible enough to withstand ½-inch joint separations. One section is easily spliced to another by heat sealing with a hot knife.

WATER SEALS, INC., 9 S. CLINTON ST., CHICAGO 6, ILL., is offering the new waterstop in lengths to 100 feet. For additional information, address the company directly, or you may use the Post Card on the colored page in this section. Circle No. 721.

ROOT

UNDERTRUCK SCRAPERS

***Pay Off* ALL YEAR!**

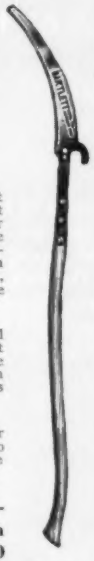
Use them in spring, summer and fall to maintain streets and roads . . . in winter to remove snow and ice . . . bears down and really chisels off the ice. Positive hydraulic down pressure. Moldboard swings up out of way when not in use. Fits any truck, 1½ through 8-tons. Cities can do more work with smaller investment. Ask for Bulletin 333.

Better Road Machinery Since 1891

ROOT SPRING SCRAPER CO. GET TO THE ROOT OF THE PROBLEM

545 WEST NORTH ST., KALAMAZOO, MICH.

PRUNING MADE EASY



Bartlett Mfg. Co. now offers the M-414 MEYLAN PRUNING SAW which consists of the use of an axe handle with the Bartlett No. 44 Pole Saw Head except that a special blade of heavier tool steel is used and can be furnished in either 16-in. or 18-in. length. The axe handle, which is especially made for this saw, is properly tapered to fit the head and is 36 in. long.

Because the Meylan Saw will enable a man of average height to prune 9½ ft. from the ground, it has made a saving in pruning coniferous plantations as great as 25%.

The Saws are available for prompt shipment, delivered to any address in U.S.A. at the following prices:

M-414 Meylan Saw, complete with 16-inch blade $11.60

M-414 Meylan Saw, complete with 18-inch blade $12.00

Ask for Catalog No. 34

Bartlett Mfg. Co.

Box 14, 3003 E. Grand Blvd.

DETROIT 2, MICHIGAN

LET THE PUBLIC *keep your* STREETS and PARKS CLEAN . .

Use NORWICH Street and Park Baskets

83-C

CONSTRUCTION

- 8 Ga. Wire Mesh.
- 8 Vertical Braces with Interlocking Ring.
- 3½" Deep Sheet Metal Pan.
- Angle Iron Ring.
- Reinforcing Bottom.
- Hot Dip Galvanized after Fabrication.

34" Deep.
22" Top.
18" Bottom.
Approx. wt. 43 lbs.
6" x 16" Blank Sign Plate

Write today for full details.

NORWICH WIRE WORKS, INC.
54 Broad Avenue
NORWICH, N. Y.

MIRO-FLEX SIGNS ARE

EMBOSSED

for Legibility . . . Strength . . . Quality

Check your requirements for quality traffic control signs and you'll find them all in Miro-Flex. See for yourself how the embossing of not less than 0.100 inch gives greater strength and makes Miro-Flex signs more legible because of the dimensional effect.

All Miro-Flex signs are furnished with the best baked-on enamel on zinc-coated, Bonderized steel to assure you of maximum durability without maintenance. See your Miro-Flex representative or write for your free copy of "Signs by Miro-Flex."

WRITE TO THE **MIRO-FLEX** CO., INC.
1824 EAST SECOND STREET WICHITA, KANSAS

GOLDAK makes the world's finest LOCATORS

THE *Dualtronic* COMBINATION PIPE & LEAK DETECTOR

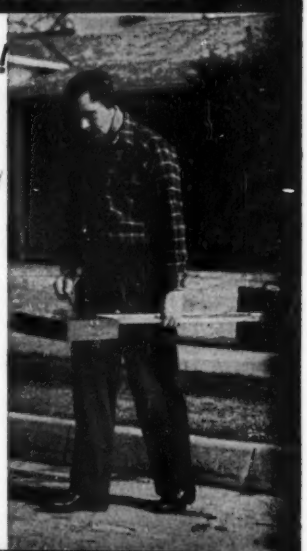
The "Dualtronic" is acclaimed by Municipalities and Utilities throughout the world, because of the time and labor savings effected by one instrument doing the work of two so efficiently and effectively. Ruggedly built! Lightweight! One man operation! The "Dualtronic" is the answer how to cut costs 50%!

Lightweight! Rugged!

GOLDAK
FEATHERWEIGHT MODEL 87
PIPE LOCATOR

Guesswork eliminated. Pinpoint location of pipes, mains, gates, tees, etc. One man operation, total weight 11 lbs.! Strong, positive location signal guaranteed by Licensed circuits and Microtuning, exclusive with Goldak. Lasts a lifetime, guaranteed performance.

Write for FREE literature!



The GOLDAK Company
Leading Makers of PIPE LOCATORS
Since 1933

1544 W. GLENOAKS BLVD.
GLENDALE 1, CALIFORNIA

This fine leaf chaff was produced by pulverizing a packed bushel of leaves with a Turbo jet power leaf mill.

Pulverizes Leaves Into Fine Chaff

Information about transforming leaves into a fine chaff, and detailed data on the Turbo Jet power leaf mill are supplied by THE TURBO JET MFG. CO., 22 BOWMAN TERRACE, CINCINNATI 29, OHIO.

Although the Turbo Jet pulverizes leaves into a fine chaff, the exact size of the particles will depend on the type and condition of the leaves. The Maple and Elm tree, for instance, produce a chaff consisting of fine particles, while the Oak and Magnolia tree produce a chaff of larger sized particles and greater bulk. Leaves grown in southern climates generally provide a greater amount of chaff than those from northern climates; and wet leaves result in more chaff and larger particles than dry leaves.

The Turbo Jet power leaf mill will blow the chaff back into the lawn as the machine is working, providing an almost invisible mulch. With the aid of attachments, it will collect and bag the chaff for later use. When working with wet leaves, the machine provides a discharge air stream which aerates and drys the leaves, making it easier to pulverize them.

A valuable feature of the Turbo Jet is its ability to get leaves out of ivy beds, from around fences and shrubs, and from other hard-to-reach places. Easily operated by one man, it cleans the leaves in swaths up to 10 feet wide.

Detailed information on the advantages of using the Turbo Jet may be obtained directly from the manufacturer, or you may use the Post Card on the colored page in this section. Circle No. 724.

Water and Sewer Superintendent

North Las Vegas, Nevada (Pop. 8500). Present salary $450.00 a month. Requires knowledge of and experience in construction, operation and maintenance of both water and sewer systems. Extensive field supervision also required.

Apply to:

Robert F. Boos
City Manager
City Hall
North Las Vegas, Nevada

REED TRADEMARK *Announces . . .*

. . a revolutionary

New HINGED PIPE CUTTER

You can cut off 8" pipe, *in*

less than 5 minutes

send for free literature on these amazing cutters for standard steel and cast iron pipe from 2½" to 12".

MAIL THIS COUPON TODAY

REED MANUFACTURING CO.
ERIE, PA.

Without obligation, please send me descriptive literature on your new hinged pipe cutters.

Name_____

Company_____

Street_____

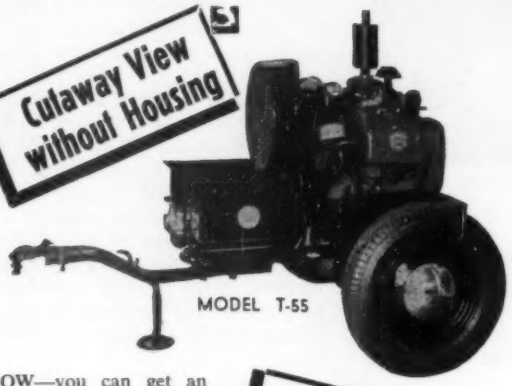
City_____ State_____

more power

ANOTHER PORTABLE

LINDSAY
AIR COMPRESSOR

Cutaway View without Housing



NOW—you can get an air compressor that will run a medium size paving breaker at full capacity yet is so portable it needs only one or two men (not a whole crew or truck) to get in position and operate. This heavy duty Lindsay Model T-55 is especially designed for rugged digging and drilling. Is priced to meet the budget of the small town as well as the large.

QUICK FACTS ABOUT THE LINDSAY MODEL T-55.

- Most portable in its class
- Large storage box for tools
- Torsion spring mounting
- Direct fan cooling

Lindsay Model T-55-H with heavy gauge metal housing.

P. K. LINDSAY COMPANY
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LIQUID METERS
All Sizes All Types

WORTHINGTON-GAMON METER DIVISION
Worthington Corp.
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Incinerator Design, by W. S. Foster, Engineering Editor.

A 6-page presentation of incinerator design principles.

Films for the Municipal Engineer.

A list compiled by the American Public Works Association especially useful for city in-training use.

Mail your request directly to

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The American City Magazine
470 Fourth Ave., New York 16, N. Y.

Purchasing

Bigger Residential Water Meters

Today's "flight to the suburbs," has brought with it a soaring demand for water to keep lawns and shrubberies sprinkled, to operate home air conditioners and home labor-saving devices, and to perform other duties. The typical trend today is to run the larger ¾-inch or 1-inch line into the new homes on these larger plots of ground.

Illustrating this trend is the Chicago suburb of Flossmoor, Ill., whose 2,700 people registered a summer demand for water of 900,000 gallons daily, or three times the winter demand. Flossmoor supplied its homes with 1-inch Rockwell meters that were able to stay on the job and serve this unusual water demand without excessive wear and tear or breakdowns. The water department gained by substantial savings in repairs and replacements; and homeowners have a guaranteed uninterrupted service.

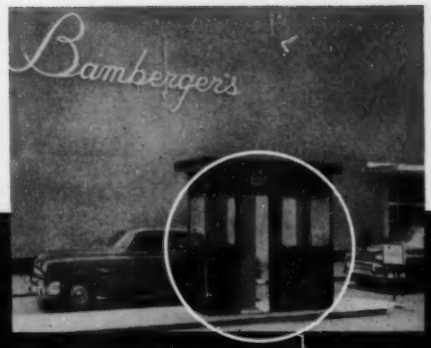
A detailed description of these "oversize" water meters is available from the ROCKWELL MFG. CO., PITTSBURGH 8, PA. Write directly, or use the Post Card in this section. Circle No. 712.

Wanted

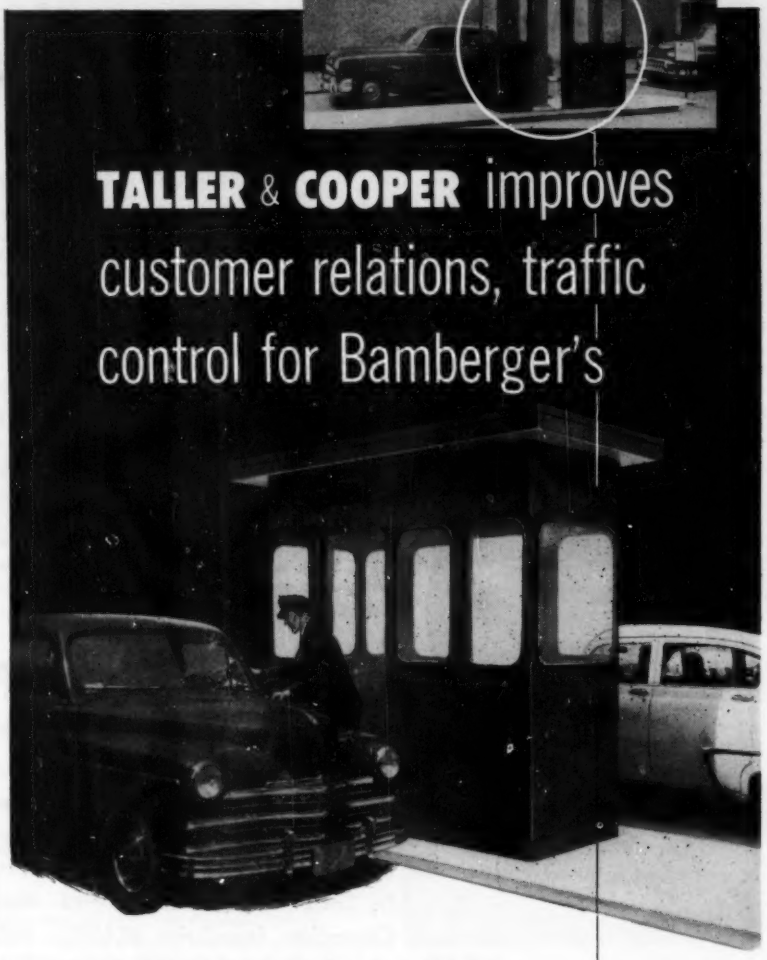
Superintendent of Municipal Power Plant (Steam Turbines) in City of 2700 population. Thirteen employees.

Apply in writing to JOSEPH N. FISCHER, MAYOR, CARLYLE, ILLINOIS, stating age, education qualifications, experience, salary expected and references.

BAMBERGER'S *makes it easier to shop at their new Plainfield, N. J. branch — with this* TALLER & COOPER *Booth in the Parking Area.*



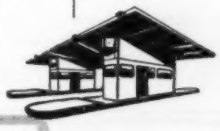
TALLER & COOPER improves customer relations, traffic control for Bamberger's



TALLER & COOPER Booths and parking systems assure quick, courteous service for the customer as well as pleasant working conditions for the attendant.

Functionally designed T & C Booths are prefabricated of rugged accident-proof steel, and delivered to the site completely assembled for immediate installation. Some of the many reasons you will see T & C Booths everywhere . . . in Parking Areas, Drive-In Theatres, Industrial plants, and on every major toll facility in the country.

WRITE TODAY for design and construction details



TALLER & COOPER, INC.

ENGINEERS • MANUFACTURERS

75 FRONT STREET • BROOKLYN 1, N. Y.

TOLL BOOTHS • TOLL COLLECTION SYSTEMS

TALLER & COOPER COLLECTION EQUIPMENT IS USED ON EVERY MAJOR TOLL FACILITY IN THE U. S.

L to R: Public Works Commissioner Paul James, Mayor Irving C. Freese and Comptroller Louis Kupan check performance of motor grader on street paving job.
Insert: Comptroller Louis Kupan

How To Reach Municipal Purchasing Officials

YOU want to reach the purchasing officials, the men who buy for the local government. It's a good objective, but don't let titles fool you. For example, consider Mr. Louis Kupan, of the City of Norwalk, Connecticut (population 49,460). Officially he has the title of Comptroller. Actually he is also Norwalk's Purchasing Agent. When selecting equipment, he works closely with Mayor Irving Freese, Public Works Commissioner Paul James, and other department heads. All of these officials subscribe to THE AMERICAN CITY.

Only a minority of city and town governments have formal purchasing departments, headed by a man with a title of Purchasing Agent. Even in these towns purchasing recommendations are made by the city engineer or superintendents in charge of public works, water works, sewerage, and parks. The City Manager and Mayor have their say, too.

The purchasing pattern differs from town to town, depending on the form of government. Whatever the pattern, THE AMERICAN CITY covers it, reaching both the engineers and the administrative officials. Stimulate your sales to cities and towns by investing in THE AMERICAN CITY.

The American City | Contractors and Engineers | The School Executive

The American City
470 Fourth Avenue, New York 16, N.Y.

Crawler Crane Speeds Milwaukee Sewer Construction

Working with a 25-foot standard boom and clamshell attachment, this Schield Bantam Model C-35 crawler handled all excavating, placement, and backfill work on a 700-foot sewer construction job for the City of Milwaukee.

The unit, owned by the Grange Construction Co., broke up and loaded out old brick paving, excavated to a depth of 16 feet, lowered pipe into trenches, and pulled shoring.

For a full description of the Bantam crawler, write the SCHIELD BANTAM CO., 234 PARK ST., WAVERLY, IA., or take advantage of the Post Card on the colored page in this section. Circle No. 708.

SAVE up to 85% brush handling costs

This new M & M Brush Grinder rapidly converts 7 truckloads of brush into one truckload of chips.

Save on labor costs . . . truck operating costs. One man feeds brush or branches up to 6" in diameter into the Brush Grinder where they are chewed into small uniform wood chips and automatically blown into a truck or spread on the ground. The new M & M Brush Grinder is a portable unit with its own power plant. It hitches to jeep, car or truck for transportation right to the job. Safe easy operation with all moving parts fully enclosed. Nearly 100 years of experience in building fine grinding equipment is your assurance of long dependable service from an M & M Brush Grinder.

81

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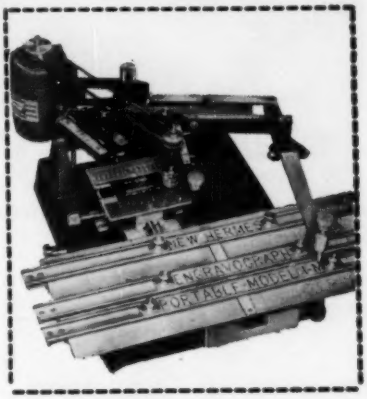
MITTS & MERRILL 1003 S. WATER ST., SAGINAW, MICHIGAN

engrave your own signs

MARKERS

NAMEPLATES

right on the premises



Portable machine, so simple to operate by anyone

- Make permanent attractive signs at less cost.
- Engraves on plastics, wood or metals.
- Tested and approved by City Departments.

NEW HERMES
ENGRAVING MACHINE CORPORATION
13-19 University Place • New York 3, N.Y.

Member of a Great Pump Family

There is a PUMP by Aurora for every pump job.
TYPE-OD
Aurora Horizontally Split-Case, Double Suction, Single Stage Centrifugal Pump.
For general water supply for municipalities, industries, office buildings, institutions—also—for handling liquids, chemical solutions, oils etc., in a wide variety of industries. Write for Bulletin 105-M for further details.

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AURORA Always PUMPS — AURORA PUMP COMPANY

DIVISION OF THE NEW YORK AIR BRAKE COMPANY

66 Loucks St., AURORA, ILLINOIS

ALUMINUM NIGHT REFLECTING *Street Name Signs*

Made of Aluminum . . .	All signs are made on aluminum, so they will never rust. Size: 3″ x 18″ with 1½″ letters.
Raised Lettering . . .	The letters are pressed into the metal, so that names are raised.
Reflectorized . . .	The lettering is reflectorized with high-quality glass beads so that when light strikes them, they shine out and can be easily read at night. The letters are white, on a black background.
Price . . .	$3.90 each, on an order of fifty or more assemblies. Aluminum bolts and steel brackets are furnished with each assembly.

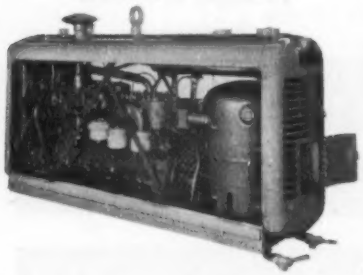
STELLO PRODUCTS COMPANY

704 S. Main Box 349 Hutchinson, Kans.

Purchasing News

Improved Air Compressor

The 105 cfm utility air compressor is again available from the Le Roi Co., this



time with improved air cleaning and cooling through the use of oil bath air cleaners and a pressurized cooling system. The unit is contained in one housing together with an upright air compressor. It may be mounted crosswise behind a truck cab, leaving adequate space for other equipment and materials.

Particularly useful in operating portable power tools for street maintenance, the 105 cfm measures some 25 inches wide and 82 inches long. It is easily removed from the truck and equally simple to move back again. The controls as well as the instrument panel are located on the "curb side," with water, gasoline, and oil filler necks protruding from the hood.

For detailed information on the 105 cfm air compressor, address the LE ROI CO., MILWAUKEE 14, WIS., or you may use the Post Card on the colored page in this section. Circle No. 700.

The New Link Radio Corp.

A new company, LINK RADIO CORP., 125 W. 17TH ST., NEW YORK 11, N. Y., has taken over rights and title to the former Link Radio Corp., of Delaware, a pioneer in the field of mobile radio communication equipment for over a decade.

All types of Link equipment to meet the needs of police and fire departments, and civil defense groups, are available.

The new Link Radio Corp. is owned exclusively by Murray Platt, president. James B. Ferguson is chief engineer, Paul H. Bellingham and Robert W. Fisher are both assistant chief engineers and district managers, and Ignatius R. Barbitta is central district manager.

City Planner Wanted,

will have responsible charge of planning in fast-growing city of 45,000. Requires degree in planning or engineering and four years' planning experience. Salary range $483 to $616 per month. Retirement system and other employee benefits.

Write
C. Leland Gunn
City Manager
P. O. Box 61
Bakersfield, California

Small Snow Blower Gives Big Performance

Latest addition to the line of snow throwers offered by The Maxim Silencer Co., is the Model 248, a powerful unit capable of throwing 2,400 square feet of snow per minute. The machine is only 48 inches wide and will navigate the average sidewalk without damaging bordering turf. It clears streets and parking areas quickly and inexpensively.

The new snow thrower has a wheelbase of only 58½ inches, and will turn on a 10-foot radius. Its scoop is raised hydraulically to a height of 10¾ inches, and the machine will readily climb a curb of 8 inches.

By removing eight bolts you can take off the entire front half and cab of the snow thrower, transforming the machine into a 4-wheel power unit for year-round operation.

Additional data on the Model 248 is available from The Maxim Silencer Co., 85 Homestead Ave., Hartford 1, Ohio. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 717.

got enough EARS?

BE ON THE CONSTANT ALERT

All Departments Can Now Listen to Every Vital Message

MONITORADIO for a thoroughly coordinated 2-way communication system.

Now every member of every department can have radio communication for as little as $49.95

Write today for further information.

- Nation's most complete line of monitor receivers.
- Crystal controlled or tunable for any VHF FM communication system.
- Mobile or stationary receivers.
- Prices to meet any budget.
- Certified for civil defense use.

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No. 3X

Frame length 37¼"
Frame width 15"
Capacity ¾" to 2" Pipe

A ONE MAN MACHINE

Push Pipe

Summer & Winter

Push Pipe

WRITE FOR NEW CATALOG SHOWING COMPLETE LINE OF PIPE PUSHERS AND PRICES.

GIANT MANUFACTURING CO., COUNCIL BLUFFS, IOWA

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Maintenance AND Towel Costs WITH

Sani-Dri ELECTRIC HAND OR HAIR DRYERS

SAVES MAINTENANCE EXPENSES!
New No. 8 wall model with patented, faster-drying features!
ELIMINATES TOWEL EXPENSE . . . SAVES STORAGE SPACE
ELIMINATES TOWEL LITTER

Save valuable maintenance time and eliminate continuing towel expense. New high-speed Sani-Dri provides quick, automatic hand or hair drying service 24 hours a day year after year! Sani-Dri is a permanent solution to your washroom sanitation and drying problem . . . and SAVES UP TO 85% OF YOUR WASHROOM COSTS!

NEW FASTER-DRYING FEATURES!

- *New faster-drying heating element!*
- *New smaller, oval nozzle produces more concentrated stream of air!*
- *Instant starting push-button switch with automatic shut off!*

All Sani-Dri Electric Dryers are GUARANTEED, and have carried the Underwriter's Seal of Approval for over 18 years!

New Brochure!

Shows all Sani-Dri hand and hair dryer models with new high-speed drying features . . . plus installation pictures. Write today!

Distributors in principal cities

The Chicago Hardware Foundry Co.

"Dependable since 1897"

5194 Commonwealth Ave., North Chicago, Ill.

MODERN REFUSE DISPOSAL

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• • • as typified by the incinerators in the Disposal Plant recently completed for the Town of North Hempstead, N. Y.* and now in operation. Two Morse Boulger Mechanically Stoked Units with a combined capacity of 250 tons per 24 hours take care of this town's needs.

For more than sixty years, Morse Boulger Incineration Specialists have cooperated with city and town officials and consulting engineers of all sized communities—LARGE and SMALL—in the solution of their Waste Disposal Problems. For further details write to or call

* Henry A. Sahm, Supervisor
C. MacCullum, Consulting Engineer

We'll have a booth staffed by competent incinerator specialists at the Atlantic City Convention.

MORSE BOULGER DESTRUCTOR CO.
205-R East 42nd Street **New York 17, N. Y.**

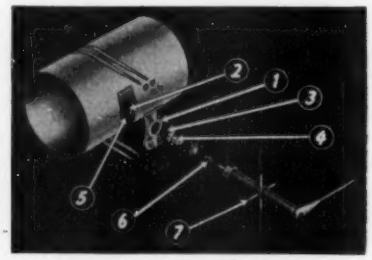
Purchasing

How to Tap Prestressed Concrete Pipe

Cities can take advantage of the low cost, permanence, and high-carrying capacity of prestressed concrete pipe without handicapping themselves with difficult tapping procedures, according to PRICE BROTHERS CO., 1823 E. MONUMENT AVE., DAYTON 1, OHIO.

If the fittings can be made to order in the pipe, the overall cost will drop since several outlets can be prefabricated in the factory for the same cost of one in the field. However, when the need arises, and it often does, waterworks men can tap the prestressed concrete pipe quickly, safely, and with ordinary tapping tools.

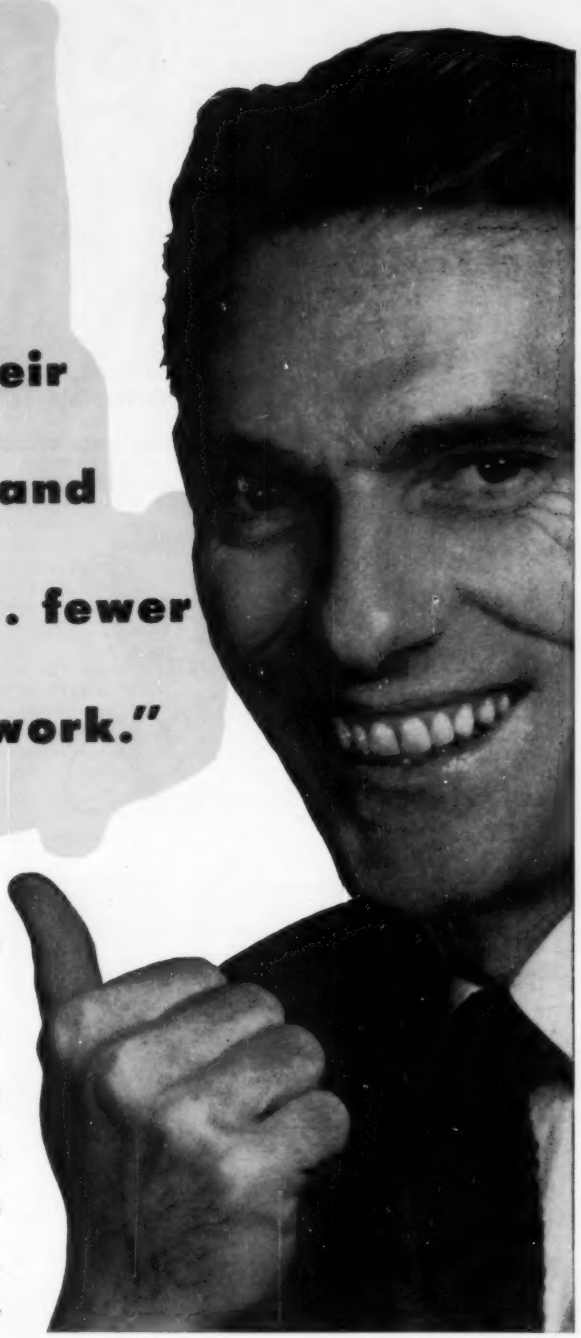
The procedure is simple: first cut a hole through the outer layer of mortar, exposing the prestressing wires; next spread a thin layer of cement mortar around the tap location; then seat the malleable iron saddle (1) over the hole, bolting it firmly by tightening the wrought-iron bands. Next, cut out the prestressing wires (2) and insert the rubber gasket (3)in the groove of the gland (4); place the gland in the saddle hole, tightening it against the steel cylinder (5) to make a watertight connection; then thread the corporation cock (6) into the gland and open it; attach the drilling machine (7) to the cock and cut out the steel cylinder and core; retract the drill, close the cock and remove the tapping machine; encase the tapping saddle and bands with a protective coating of concrete and the permanent watertight connection is ready to operate.



Match this drawing with the accompanying text and see how easy it is to place a tap in a concrete pipe under pressure.

The company has a new booklet telling in detail how to tap Price Brothers prestressed concrete steel-cylinder pipe under pressure. Copies of the booklet can be obtained by writing directly to Price Brothers Co., or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 737.

"We use American Meters because of their simple design and quick servicing . . . fewer men handle the work."



"It costs money to keep a crew of meter repairmen. That's why we selected the water meters that were simplest in design and easiest to service . . . AMERICAN METERS.

Even when AMERICAN METERS are frozen, we find no damage to anything but the frost bottom. All internal parts, including the gear train, have separated, avoiding ice damage. Breaking pressure of the replacement frost bottoms has been predetermined at the factory, so we don't need torque wrenches on the nuts. Yes, when we think of economy in water meters, we think of AMERICAN METERS."

• Write for complete information . . . today.

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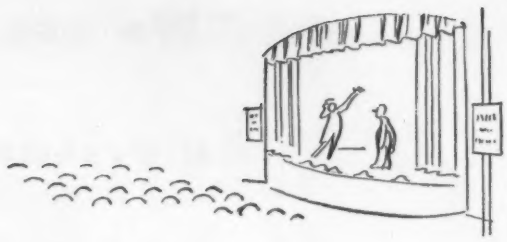
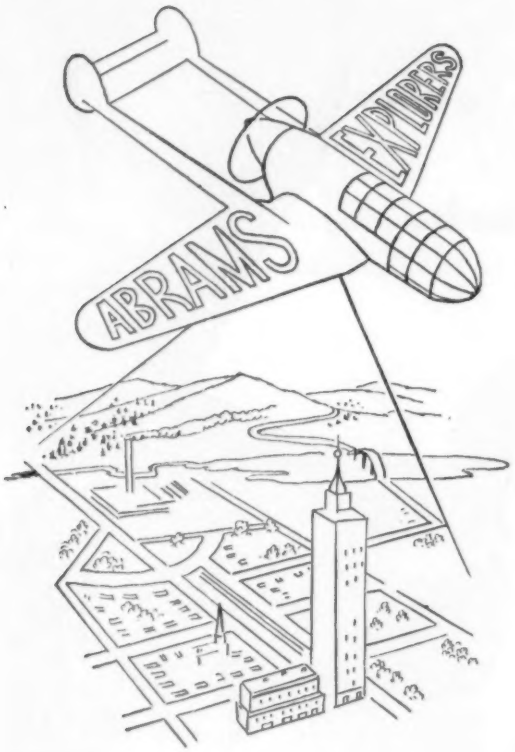


"How many trees are there?"

Once a comedy line . . . .

Today a fair question, which demands a precise answer!



The guardians of our forests, mineral, agricultural and industrial reserves — those interested in transportation—rail, highway and pipeline—those who guard the comfort, welfare and safety of our communities, ask that and hundreds of similar but unrelated questions daily. And, they want answers quickly, correctly, and conveniently.

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About People

You know or should know

E. N. Zimmerman is now advertising manager for the **Chicago Bridge & Iron Co.,** Chicago, Ill. Associated with the firm for the past 17 years, he was appointed assistant advertising manager in 1945. Chicago Bridge & Iron also informs us of the recent death of Merle J. Trees, chairman of the company's board of directors. Mr. Trees was 71 years old.

Following the purchase of all of the outstanding stock of **Hubbard and Company** by Charles Dyson and associates, Mr. Dyson takes over as chairman of the 111-year-old company's board of directors. He succeeds Joseph V. Smith, who retired recently after 40 years as chairman. James H. Knowles, president of Hubbard and Company, retains his position as chief executive officer, and the entire firm will continue to be independently operated.

Scheduled to represent the **Hydraulic Development Corp.,** New York City, in Kentucky and Tennessee, is J. T. Guthrie, who will carry a stock of Hydro-Tite and Fibrex pipe-jointing material in the City of Nashville. Mr. Guthrie also represents the Hersey Mfg. Co., The A. P. Smith Mfg. Co., the Simplex Valve and Meter Co., and the National Water Main Cleaning Company.

J. T. Guthrie

Harold R. Fosnot will manage sales for the **Graver Water Conditioning Co.,** New York City, according to H. T. Sulcer, vice-president and general manager of the firm. Mr. Fosnot has been with Graver since 1935.

News from R. W. Bayerlein, vice-president of the Heavy Machinery Division, **Nordberg Mfg. Co.,** Milwaukee, Wis., discloses the appointment of a new district manager and new sales engineer. The district manager, Marvin Wall, will serve customers in Oklahoma, New Mexico and North and Central Texas, while R. C. Gamble, new sales engineer, handles the firm's Dallas territory.

Guy Scrivner has been chosen to head the newly created Municipal Sales Department of the **Le Roi Co.,** according to Jack E. Heuser, the firm's engine sales manager. Mr. Scrivner will be chiefly responsible for the sale of engines used to power standby generator sets and centrifugal pumps. The new department will coordinate a nationwide sales effort from headquarters in Milwaukee, Wis.

Guy Scrivner

After extensive training by the **International Salt Co., Inc.,** Scranton, Pa., in its program of rock salt stabilization for roads and shoulders, Arthur R. Armstrong has been appointed to the firm's Highway Sales organization. He will work under the direction of S. James Duncan, manager of Highway Sales, covering the States of New York, New Jersey, Connecticut, Pennsylvania and Maryland.

Bradford E. Bailey has been appointed chief chemical engineer of **Brown, Blauvelt & Leonard,** a firm of chemical and industrial engineers with offices in New York City. The firm offers industry such services as chemical and process design, planned maintenance programs, drafting and design, consulting services, utility conservation, and project engineering.

After many years as director of research engineering and development for the Edwards Co., Inc., Edward S. Ruth joins **The Gamewell Co.,** of Newton Upper Falls, Mass., as supervisor of Industrial Signaling Engineering.

E. S. Ruth

The recent formation of three engineering divisions by **The Cooper-Bessemer Corp.,** Mount Vernon, Ohio, has resulted in the appointment of three new engineers to head these divisions, reports Ralph L. Boyer, vice-president and chief engineer for the firm. New chief engineer for the Development Division is W. R. Crooks. Dennis L. Gallogly will head the Product Division, and T. O. Kuivinen, the Technical Division. The various programs of the three divisions will be coordinated by E. Frederick, executive engineer.

The **Permutit Co.,** New York City, leading manufacturers of ion exchange resins and water conditioning apparatus, has appointed a new sales engineer for its St. Louis (Mo.) office. He is Robert Fay O'Connell, former plant engineer and development chemist for the Phelan Faust Paint Mfg. Co. Permutit has also named a new research engineer, John P. Termini, to work in the company's Special Applications Department. Mr. Termini will concentrate on the design of ion exchange techniques outside the field of water treatment.

A number of personnel changes beginning with the appointment of Charles M. George as assistant to President G. V. Leece, are announced by the **Gardner-Denver Co.,** Quincy, Ill. Other appointments include that of J. W. Gardner as administrative assistant; B. P. Spann, new vice-president; and George W. Gutekunst, general sales manager.

Motorola Communications and Electronics, Inc., has appointed Donald F. Brickley new regional manager for the Pacific Northwest, reports Eugene S. Goebel, national sales manager of the firm. Mr. Brickley will have charge of Motorola's sales activities in the States of Idaho, Montana, eastern Nevada, Washington, Wyoming and Utah. He will make his headquarters at 3833 N. E. Union Ave., Portland, Ore.

D. F. Brickley

John Lawrence has been elected executive vice-president of the **Joy Mfg. Co.,** according to the firm's president, J. D. A. Morrow. Mr. Lawrence joined the company in 1951, last serving as vice-president of manufacturing and engineering.

Leaving his position as sanitary engineer director at the Robert A. Taft Sanitary Engineering Center, U. S. Public Health Service, Cincinnati, Ohio, Paul D. Haney has joined the staff of **Black & Veatch,** consulting engineers of Kansas City, Mo. Mr. Haney will devote himself to such sanitation problems as water supply, water purification, sewerage, and sewage and trade-waste disposal.

A. F. Woods succeeds Andy Rubin as sales manager for the **Marlow Pumps Division** of the **Bell & Gossett Co.** Mr. Woods has been with the Division for the past five years.

From James M. Mead, vice-president in charge of procurement for **Joseph T. Ryerson & Son, Inc.,** Chicago, Ill., we learn of the appointment of a new director for the company's merchandise - procurement division. He is Robert H. Wasz, associated with the Ryerson organization since 1942.

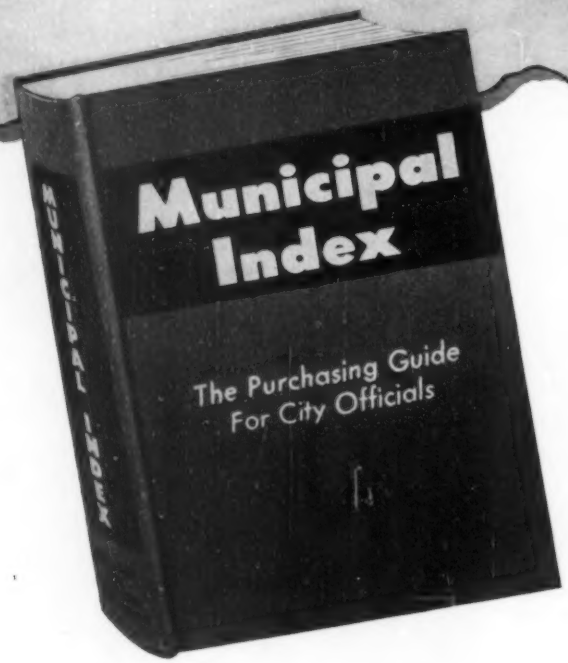
R. H. Wasz

PAGE 955

Who's Who in

Equipment and Supplies

Indexed by Products — Turn to page numbers shown for listing of manufacturers under each product



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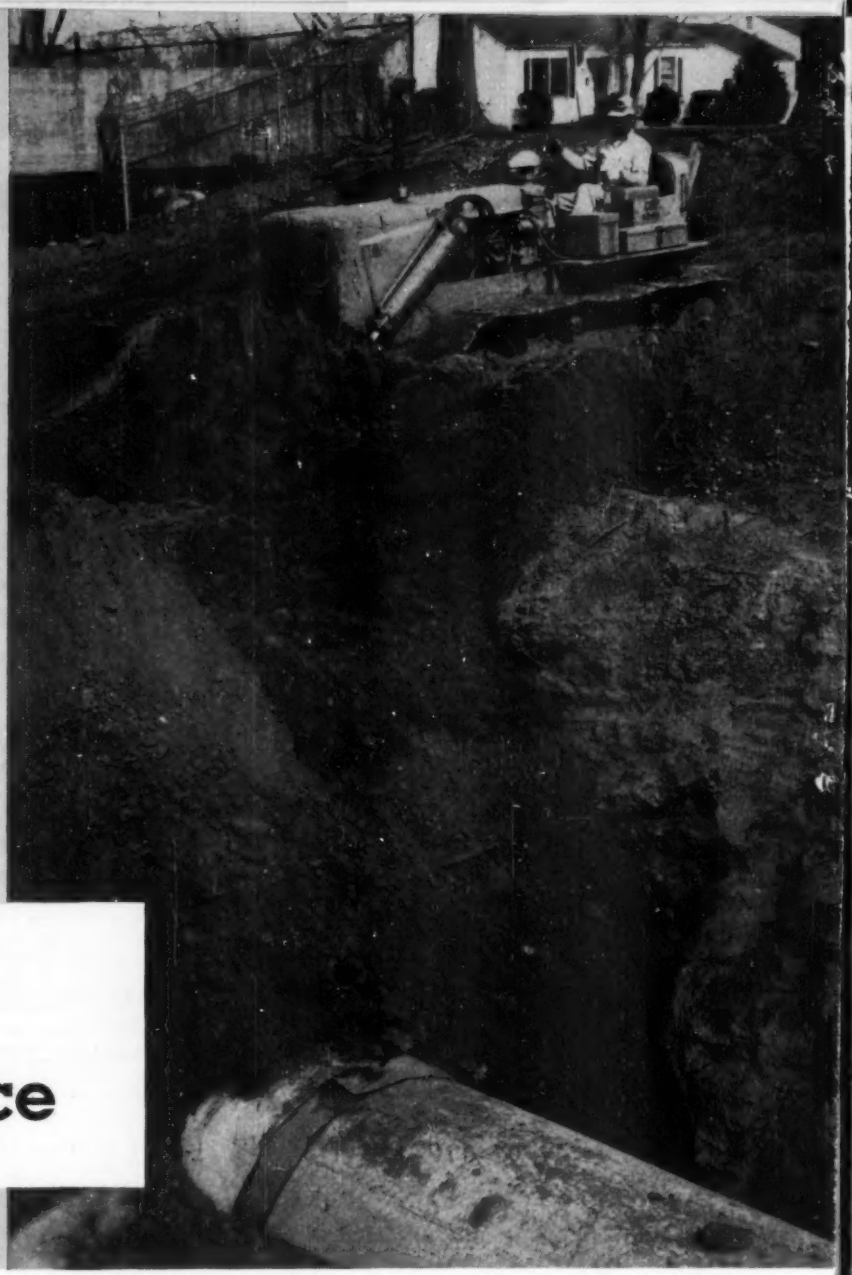

The Caterpillar Diesel D6 Tractor with No. 6A Bulldozer shown here is owned by F. M. Stowell. It's working on a contract for the City of Tulsa, Oklahoma, backfilling sewer trench on the Arkansas River interceptor line. This 3½-mile sewer project averages 14 feet deep and the pipe is 36 to 60 inches in diameter. It will carry sewage to a disposal plant across the river.

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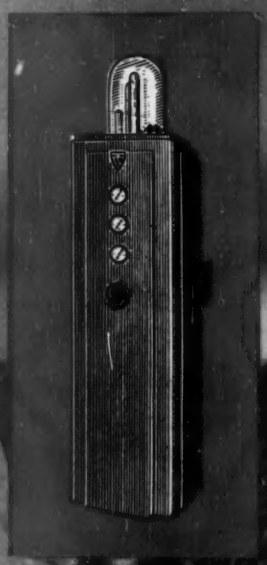

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